VEGETABLE MATERIA MEDICA

OF THE

UNITED STATES:

OR,

MEDICAL BOTANY.

MISSOURI BOTANICAL
GARDEN LIBRARY

VEGETABLE MATERIA MEDICA

OF THE

UNITED STATES;

OR

MEDICAL BOTANY:

CONTAINING

A BOTANICAL, GENERAL, AND MEDICAL HISTORY, OF MEDICINAL PLANTS INDIGENOUS TO THE UNITED STATES.

ILLUSTRATED BY

COLOURED ENGRAVINGS,

MADE AFTER DRAWINGS FROM NATURE, DONE BY THE AUTHOR.

BY WILLIAM P. C. BARTON, M. D.

Surgeon in the Navy of the United States, and of the Hospital for Marines at the Navy-Yard, Philadelphia; Fellow of the College of Physicians of Philadelphia; Member of the American Philosophical Society; President of the Philadelphia Linnean Society; and

PROFESSOR OF BOTANY

in the University of Pennsylvania.

SECOND EDITION.

VOLUME I.

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.....

1825.

MISSOURI BOTANICAL GARDEN LIBRARY

DISTRICT OF PENNSYLVANIA, TO WIT:

L. S.

BE IT REMEMBERED, That on the twelfth day of August, in the forty-second year of the Independence of the United States of America, WILLIAM P. C. BARTON of the said District, hath deposited in this Office the title of a Book, the right whereof he claims as Author, in the following words—to wit: Vegetable Materia Medica of the United States; or Medical Botany: containing a Botanical, General, and Medical History of Médicinal Plants, indigenous to the United States. Illustrated by Coloured Engravings, made after drawings from nature, done by the Author. By William P. C. Barton, M. D. Surgeon in the Navy of the United States, and of the Hospital for Marines at the Navy-Yard, Philadelphia; Fellow of the College of Physicians of Philadelphia; Member of the American Philosophical Society; President of the Philadelphia Linnean Society; and Professor of Botany in the University of Pennsylvania. Volume I. "In conformity to the act of the Congress of the United States, entitled, An act for 'the encouragement of learning, by securing the copies of maps, charts, and books, to the 'authors and proprietors of such copies, during the times therein mentioned."—And also to 'the Act, entitled, "An act supplementary to an Act, entitled, "An Act for the encouragement of Learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof, to the Arts of designing, engraving, and etching historical and other prints."

D. CALDWELL, *Clerk of the District of Pennsylvania.*

TO

JOHN SYNG DORSEY, M. D.

MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY; AND OF THE ROYAL DANISH MEDICAL SOCIETY AT COPENHAGEN: ONE OF THE SURGEONS OF THE PENNSYLVANIA HOSPITAL; ADJUNCT PROFESSOR OF SURGERY, AND PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF PENNSYLVANIA.

My dear Sir,

Permit me to inscribe to you the first Volume of this Work. To no one more properly could it be dedicated.

Should you be enabled to render it subservient to the interest of that branch of Medicine which it is your province to teach, I feel confident you will not withhold from it your patronage.

I avail myself of this opportunity to express for you, my high consideration and personal regard.

WILLIAM P. C. BARTON.

August 12, 1817.

ADVERTISEMENT.

In describing the plants enumerated and figured in this work, the following plan has been adopted :

The first line in large capitals, contains the systematic or botanical name of the plant; the second line in smaller capitals, contains the common or most general English or vulgar name or names.

The English or vulgar names enumerated after, are those by which the plant is occasionally known, and recognized in different sections of our country; and as these are sometimes quite local, they are merely noticed for general information.

The paragraph following these names, contains a reference to the works of different authors who have noticed the plant. Many have been omitted, because the author had not access to them, and some, because their works were not scientific.

The generic character follows, together with a reference of the plant to the natural system of Jussieu; the natural order of Linnæus's natural method; and the class and order of the artificial system of this author.

Immediately in succession, the best specific character known, is given, with a reference to the author. The synonyms next follow, succeeded by a brief notice of the pharmaceutical preparation of the plant, its virtues, its effects, medical uses and dose.

The *descriptio uberior*, or full description, in Latin, is always supplied for this work by the author, or quoted from his manuscript copy of the Flora Philadelphica; though in cases where a good one has already been given, it will be quoted, with a reference to the author, as in the case of that of Chimaphila umbellata.

The text in large type, begins with a general or familiar description of the plant, calculated for the generality of readers, who, with this and the plate, will be, it is hoped, at no loss to identify the plants described.

The chemical analysis, when any has been made, follows; then a history of the medical properties; after which the œconomical use or uses are noticed; and the history completed by an explanation of the plates, and the dissections of the flowers and fructification contained in them.

VEGETABLE MATERIA MEDICA

OF THE

UNITED STATES.

PRELIMINARY OBSERVATIONS.

SINCE the writings of Cullen, Murray, and Woodville appeared in Europe, few authors of any celebrity have written on the Materia Medica. Consequently few discoveries were published of any note, or which added any thing very important to the science; and thirty years ago the knowledge these authors communicated to the world, was not enriched by the addition of a single valuable medicine from North America. About the year 1786, a German physician, named Shœpf,* visited our country, and employed himself in collecting materials for an American Materia Medica. It cannot be supposed that

* Dr. Shœpf, of Erlangen, in Germany, was a botanist, who came to this country with the German troops during the revolutionary war.

in a country like ours, rich in the production of new and curious plants, domestic medicine would be neglected by the natives or inhabitants; or that the practitioner who might think proper to employ indigenous medicinal plants in his practice, would stand in need of useful remedies. Accordingly we find, that not only the Indians of our country, and the European inhabitants who emigrated hither, but the farmers who were scattered over its extensive territory, had long been in the habit of curing the common diseases incidental to their state of life, by means of indigenous vicinal plants. Many of the vegetables thus employed had considerable reputation. It is not unlikely that some were undeservedly praised, while it would be unreasonable to suppose that all of those which had acquired repute, were undeserving attention. Dr. Shœpf, however, set himself assiduously to investigate all such plants as were reputed to possess medicinal powers; and, satisfying himself, by ocular proof, of the real species in question, he was enabled, by ascertaining their botanical characters and history, to present us with some certain facts for future experiment. In 1787, he published the result of his labours in a small work, entitled *Materia Medica Americana potissimum Regni Vegetabilis.* This performance laid the foundation of all the information we now possess, concerning our native medicinal plants. Besides this work, a paper was published in the Amœnitates Academicæ, (vol. iv. Dissertatio LXXII. p. 522.) entitled *Specifica Canadensium*, in which Coelln, the author, enumerated and described some few indigenous medicinal plants. On the 21st of February, 1798, the late professor Barton read a paper before the Philadelphia

Medical Society, entitled "Collections for an Essay towards a Materia Medica of the United States." This paper contains a summary of all that had been done by those who preceded him, relative to our Materia Medica; and also an addition of several articles which, from information received by the author concerning their properties, he deemed sufficiently important to be ranked among our native medicines. In the year 1804, the professor published a second part of the "Collections," containing many additional facts relative to the plants enumerated in the first part, and a brief notice of some other important vegetables of active properties. These "Collections" are carelessly thrown together; and it is to be regretted, without even sufficient method, to render them useful. In this state they have gone through three editions, making in the last an octavo of 120 pages. The plants enumerated, are spoken of merely by their names, and the work is destitute of any kind of description calculated to assist the country physician or botanist.

The travels of Lewis and Clarke led to high expectations in every branch of science. The observations and inquiries of these gentlemen, particularly the former, were directed, among other things, to the medicines and aliments of our Indians; and they have given a large portion of information of a very interesting nature on these points. Unfortunately however for science, this information is not communicated in such a way, as to enable the botanist, the physician, or the agriculturist, to draw very efficiently upon the extensive sources of

knowledge they present. A want of accurate descriptions of mixed medicinal and alimentary plants, deprives us of half the value of their discoveries.

Except these publications, there has appeared but little on the Materia Medica, in the United States. In the American Dispensatory, published by professor Coxe, many of our medicinal vegetables are incorporated with the foreign articles of medicine. This valuable work has given considerable importance to the native plants enumerated in it; besides which professor Barton added such as he esteemed most useful, to his edition of "Cullen's Materia Medica."

Dr. Thatcher's Dispensatory contains also an enumeration of some of our native medicines, but nothing more than those which stand in the works of professors Barton and Coxe just mentioned; and in the little Pharmacopœia published by the Massachusetts Medical Society, a few are noticed. In professor Chapman's "Discourses on the Elements of Therapeutics and Materia Medica" now in the press, the prominent indigenous articles are, I understand, treated of; and the same importance attached to them which that gentleman was accustomed to give in his Lectures on the Materia Medica, to all useful native medicines.

The University of Pennsylvania is annually filled by a numerous train of pupils, many of whom settle and practice physic in the

wilds of our country. The author supposed that a work describing our own medicinal productions, emanating from the school, whither they resort, would be likely to disseminate a knowledge of the properties and uses of our native medicines, in those parts of our country where such knowledge is highly serviceable. From a close attention to our Materia Medica, and from some experiments he has recently made, he is convinced that not a few of our indigenous plants are sufficiently important, to be introduced into the daily practice of physicians. The well known deterioration of many foreign medicines in common use, renders it still more desirable to supersede them by the general employment of native productions. Hitherto this has been impracticable, owing to the want of some certain means of particularising those plants, the properties of which are most valuable. Good medicines have fallen into disrepute, from the resemblance of inert to active plants; and although there is always something in a plant which distinguishes it from every other vegetable, yet the discrepancy is occasionally so equivocal, that common observers are wholly unable to profit by it without a good drawing. This will not appear surprising, when it is remembered that even botanists are sometimes perplexed with the close alliances in the habit and structure of plants.

The exposition of these circumstances is sufficient to show the importance of presenting the public with a work containing a full description and history of the native medicinal plants which have been

introduced by their names, and some few remarks on their properties, into the works already noticed; and to enable every one to identify the precise plants described, good coloured engravings of them are indispensable.

The author of the following pages has undertaken the task of drawing and describing all the important plants of a medicinal character, native to the United States, which are known; and also of figuring and describing many never before noticed for medical properties. In all the drawings, many of which are already finished, the greatest accuracy will be studied; and with a view to render the work as correct as possible, the author encounters the laborious task of colouring all the plates with his own hand. Since faithful colouring is nearly as important in a work of this nature, as correct drawings, he trusts that the usefulness of the undertaking will be enhanced by this part of his labour. In the history of the plants nothing will be omitted, which can render the work interesting.

Three years have been passed in collecting materials for this work. The author has already delivered three courses of public lectures to the medical students of the University of Pennsylvania, on the plants which will be described; and he announced to the members of his class, in May, 1816, his intention of publishing the system of Indigenous Vegetable Materia Medica, of which he now presents the first number.

As it is probable that country practitioners of medicine residing in different parts of the United States, are possessed of much useful information, derived from experience, concerning our native medicines, the author earnestly solicits communications on this subject. Due credit will always be given for any facts on good authority, communicated in this manner.

The Trustees of the University of Pennsylvania having recently purchased forty-two acres of rich and watered land, near to Philadelphia, for the establishment of a Botanic Garden: physicians residing in the different parts of our country, who have it in their power, will contribute materially to this institution, by transmitting to the author, seeds or roots of such plants as they have found possessed of active medicinal virtues.

Philadelphia, July 1, 1817.

Fig. 1.

Fig. 2.

from Nature by M.P. Pierson

Printed by Weiss & Kearny &

CHIMAPHILA UMBELLATA.

Ipsissewa. Winter-green.

VEGETABLE MATERIA MEDICA.

CHIMAPHILA UMBELLATA.

PIPPSISSEWA....WINTER-GREEN.

Ground Holly—Rheumatism weed.—*Herbe de Paigne* by the Indians in Canada, and *L'Herbe a Pisser* by the Canadians.

Deutch. Das Wintergrün.—*Hol.* Wintergroen.—*Dan.* Vintergrön.—*Swed.* Vintergrönae.—*French.* Pyrole, Verdure d'hiver.—*Ital.* Pirola.

Doldentragendes Wintergrün. Willd. (German.)

CHIMAPHILA umbellata. Fl. Suec. 333, 363. Gmel. Lib. 4. p. 129. n. 18. Pollich. pal. 398. Hoff. Germ. 144. Roth. Germ. I. 151. II. 464. Bauh. pin. 191. Clus. pan. 507. Houttuyn Pfl. Syst. 6. p. 505. Pur. Fl. Am. 1. p. 300. Mich. Fl. Boreali-Am. 1. p. 251. Bot. Mag. 897. Pluk. Mant. t. 349. f. 4. Shœpf. Mat. Med. Am. p. 68. Barton's Collections, &c. ed. 3d. vol. 2. p. 2, 31, 35, 48. Coxe's Am. Disp. p. 560. Pers. Syn. Pl. vol. 1. p. 483. Barton's Prodromus, Fl. Phil. p. 50. Mitchell's Inaug Diss. Willd. Sp. Pl. 2. p. 622. Muhlenberg. Cat. p. 44.

CHIMAPHILA.

CHIMAPHILA. Mich. Fl. Boreali-Am. vol. 1. p. 251. et Pur. Fl. Am. No. 364. *Cal.* 5-partitus. *Pet.* 5. *Stigma* sessile crassum, orbiculatum, germine immerso. *Caps.* 5-locularis, angulis dehiscens. Sub *Pyrola.* Nat. Syst. Juss. *Ericæ* Classis IX. Ordo III.

PYROLA. T. L. * Pyrole. Calix minimus 5-partitus. Corolla. 5-partita, quasi 5-petala connivens petalis basi latis. Stamina 13 non exserta. Stigma 5-crenulatum. Capsula 5-locularis 5-valvis. Suffrutices aut herbæ; folia alterna aut subverticillata, pleraque radicalia; flores bracteolati terminales spicati aut rarius umbellati vel solitarii. Gen. Pl. de Juss. ed. 1789. p. 161.

Nat. Ord. Lin. *Bicornes.*

Classis, *Decandria;* Ord. *Monogynia.* Lin. Syst. (Sect. Polypetalæ *Regulares.*)

CHIMAPHILA umbellata: foliis cuneato-lanceolatis basi acutis serratis concoloribus, scapo corymbifero, filamentis glabris. Pursh. Fl. Am. Sep. 1. p. 300. ♃. Flowers in June and July.

Habitat in Europæ, Asiæ, et Americæ Septentrionalis Sylvis.

SYNONYMA.

CHIMAPHILA corymbosa. Pur. Fl. Am. Sep.

Pyrola umbellata. Michaux. Fl. Boreali-Am.

P. umbellata. Willd. Sp. Pl.

P. pedunculis subumbellatis. Fl. Suec. Gmel. Sib. Pollich. pal. Hoffm. Germ. Roth. Germ.

P. frutescens, arbuti flore. Bauh. pin.

P. 3. fruticans. Clus. pan.

DESCRIPTIO UBERIOR.

Radix repens.—Caules subdecumbentes, lignosi, spithamæi. Folia aliquando verticillata, opposita vel sparsa, subsessilia, in petiolum decurrentia, cuneiformi-lanceolata, obtusa, argute serrata, superne lucida viridissima, inferne pallida viresentia. Pedunculi terminales, terni, quaterni sive quini. Flores formosi, majores quam in pyrola rotundifolia. Calix, perianthemum 5-partitum, exiguum. Petala 5, alba, apicem versus rubicunda. Filamenta 10, filiformia, brevia. Antheræ bicornes. Stigma capitatum, obtusum, magnum. Habitat in sylvis umbrosis Americæ Septentrionalis. Med. Chi. Tran. vol. 5. p. 357.

CHIMAPHILA UMBELLATA is a plant common to Europe and America, and is indigenous also to the south of Asia. This species belongs to a genus recently severed from Pyrola, by Mr. Pursh. The generic name he has given, is compounded of two Greek words expressive of one of the most common English appellations, χειμα *hyems*, and φιλος *amicus*. In justice to the celebrated author of the Flora Boreali-Americana, it is proper to remark, that he long since hinted at the propriety of making a new genus of two of the species of Pyrola: "P. *maculata* et *umbellata*, forsan constituunt genus a Pyrola discrepans habitu, stigmate sessili et indiviso, antheris brevi-

ter rostratis et foramine sub-bivalvi dehiscentibus."* Mr. Pursh therefore has done nothing more than establish the genus, taking for its characters those proposed by Michaux. Seeing no good reason for his change of the specific name, I have not thought proper to follow him further than by adopting the genus. In restoring the specific term of *umbellata*, which ought never to have been laid aside, I am supported by the best usage, in cases where it becomes expedient to impose a new generic name. Of the genus as it now stands, there are two species: the C. maculata, and C. umbellata; the latter is correctly figured in the plate. This plant is nearly allied in botanical affinities to the *uva ursi;* and we also find a corresponding analogy in its medicinal properties and effects. The root, which is perennial, is long, creeping, and of a yellowish colour, sending off radicles. When chewed, it imparts to the taste a degree of aromatic pungency, not disagreeable. When bruised, it has a strong unpleasant smell. The stems arise, often several together, from the root, which they nearly resemble in colour at their lower ends; the middle and upper portions are reddish or dingy rose-coloured. They vary in height from six to eight inches; and, though generally erect, are not unfrequently found semi-procumbent. The leaves have the appearance of being whorled: and in general there are two of these whorls on each stem. Sometimes the leaves are alternate, and irregularly situated. They are lanceolate and somewhat wedge-shaped, narrowed towards the base, deeply

* Flora Boreali-Americana, 1. p. 251.

sawed on their edges, of a thick coriaceous texture, and of a very shining sap-green colour. The calix is small, five parted, and persistent. The corolla consists of five roundish, concave and spreading petals, which are white, tinged with rose-colour; they exhale an odour remarkably agreeable and spicy. There are constantly ten stamens; the filaments of which are awl-shaped, and shorter than the petals. The anthers are purple, large, and nodding, bifurcated, or two-horned upwards. The germ is globular, angular, of a green colour, and always covered with a viscid matter; the stigma is thick and sessile, and the style persistent. The seeds, which are numerous and chaffy, are enclosed in a roundish five-angled capsule, having the five cells gaping at the angles. The seed vessel is persistent through the winter, and is often found on the new plant while it is in flower. C. umbellata is found in great abundance in the pine forests and woods of our country, from Canada to Georgia. Pursh restricts its southern range to Virginia, in which he is incorrect; I have myself seen it in the neighbourhood of the Dismal Swamp in North Carolina, and sparingly in the vicinity of Norfolk, Virginia. Mr. Nuttall informs me he has observed it further south than this; and that he has seen it in Dr. Baldwin's Herbarium, from Flint river in Florida. It delights in a loose sandy soil, enriched by decayed leaves; and thrives most luxuriantly under the shade of trees. It is very abundant in Jersey along the course of the Delaware; but also common in almost all the woods near to the city of Philadelphia. It is in full flower in June.

CHEMICAL ANALYSIS.

From the chemical analysis of this plant, made by Dr. John Mitchell,* it appears that the decoction strikes a black colour with the sulphate of iron; and that there is little or no difference in the quantity of astringency in the leaves and in the stalks. The proportions of gum and resin contained in the plant, are, according to Dr. Mitchell's experiments, as follow: 1. Upon adding alcohol to half an ounce of the dried leaves, and suffering the mixture to stand for twenty-four hours exposed to a moderate temperature, then filtering and evaporating to dryness, a residuum weighing eighty-six grains was obtained. By the addition of water to this residuum, nineteen grains of gum were procured. 2dly. Upon adding water to half an ounce of the powdered leaves, and letting the mixture remain quiescent for twenty-four hours, exposed to the same degree of heat as in the first experiment, and then filtering the infusion, and evaporating it to dryness; a residuum was obtained, weighing forty-eight grains. By the addition of alcohol, twenty-two grains of resin were procured from this remaining powder.

MEDICAL PROPERTIES.

This plant is principally entitled to the attention of physicians, for its diuretic property; for which it is now sought and used by

* Inaugural Dissertation, Un. Penn. 1803.

many of the physicians of Great Britain.* Dr. William Somerville of the English army, deputy inspector of military hospitals, has published the result of his trials of it, in the Medico-Chirurgical Transactions of London, vol. 5. p. 340. It appears from this paper that Mr. Carter, a Surgeon who had charge of the hospital at William Henry, in Canada, had used a strong infusion of the plant in a case of ascites, with good effect. The patient had been taking digitalis, crystals of tartar, and other diuretics, without any success. The diuretic effect of the infusion in this instance, was manifest and considerable. It induced Dr. Somerville to try the medicine in the case of Sir James Craig, the governor of Canada, who laboured under general dropsy, and whose system was cachectic. He tells us that the benefit of the herb was not durable, though while it lasted, it was very considerable; that its effects upon the kidneys were perceptible in two days; and that the medicine also produced a decided effect on the stomach, increasing the appetite. Sir James was directed to begin by taking a strong infusion of the whole plant, in the quantity of a pint in twenty-four hours. The same patient took the plant in various forms, with benefit. Dr. Somerville says that another patient for whom he prescribed it, remarked, that an agreeable sensation was produced in the stomach soon after taking the medicine, followed in some instances by extraordinary increase of appetite; and he justly observes that this circumstance gives it a very great advantage over other diuretics, none of which are agreeable to

* A druggist in Philadelphia received a drawing and description of this plant from Dublin, and an order to send thither a large quantity.

the stomach, and most of them very offensive to it. Sir Walter Farquhar, it appears from Dr. Somerville's paper, had also used the Pippsissewa in the case of a lady labouring under ascites. In the detail of this case the diuretic effects are very striking. The urine seems generally to imbibe the colour of the infusion of the herb, which resembles the infusion of common green tea. Dr. Somerville says he has generally observed the good effects of the plant on the stomach, and that as far as his experience or information extended, no circumstance had occurred to forbid its use in any form, or to render it expedient to limit the dose. He further remarks, that, "the extract was prescribed in three hopeless cases of ascites, accompanied with unequivocal marks of organic visceral derangement; the patients were private soldiers: in two instances the kidneys were stimulated powerfully, and in the third the patient complained of sickness at the stomach, and did not persevere in taking the medicine." He says the surgeon of the East York militia was cured of dropsical symptoms, by the extract of chimaphila. Dr. Marcet found "striking effects" from the plant which he tried at Guy's hospital, in doses of fifteen grains of the extract thrice a day. Dr. Satterley likewise corroborates the accounts of the diuretic effect of this vegetable, by two cases which came under his care; and I am happy to have it in my power to add, that since perusing Dr. Somerville's paper, I have prescribed the infusion of the plant in four cases at the Marines' hospital under my care at the navy-yard of this city. The strong infusion was given combined with flax-seed tea in two cases, and with treacle or molasses and water, in

the other two, to the extent of a pint in twenty-four hours. In all, the diuretic effects are evident; and in one, where strangury was produced in an old man, by a large blister which had been applied for an affection of the side, the good effects of the infusion were evident in the speedy evacuation of water. Dr. Somerville says that "an ounce of the dried plant including root, stalk and leaves, cut small, and macerated twelve hours in two pints of cold water, then boiled till it yielded one pint of strained liquor, was found to act with greater energy than the infusion." Mr. Carter found that thirty-four pounds avoirdupois of the recent herb, yielded four pounds of extract. Of this extract Dr. Somerville says he gave five scruples in twenty-four hours. The extract may be given in pills, or dissolved in a small quantity of boiling water. It appears that the Hurons and other Indian nations, are well acquainted with the effects of this plant upon the kidneys. They have long been in the habit, Dr. Somerville tells us, of using it "in all disorders which they ascribe to a diminished secretion of urine, and which they believe will be cured by an increase of that secretion. They use it in gravelly complaints very commonly. It is, indeed, said to be one of the principal articles of the Materia Medica of the Indians; and in a paper by the late professor Barton, published in the 7th volume of the Medico-Chirurgical Transactions of London, he intimates that the knowledge the whites have of the use of this article in calculous affections, was derived primarily from the savages of our country. The professor says in the same paper, that, "all his trials and inquiries respecting this plant had convinced him that it is an important

antilithick, not less so than the uva ursi." The tonic property belonging to this plant, noticed by Dr. Somerville, while it seems to enhance its value as a diuretic, has led to the use of the plant in intermittents and other similar affections. Dr. Mitchell relates some cases of its success in these fevers. In one of them the diuretic operation was noticed. The urine, which was considerably increased in quantity, was of a dark or black colour. This is an interesting fact, though inexplicable. Dr. Heberden has recorded a case of a similar colour being produced by the uva ursi. The Indians use a strong and warm decoction of the Pippsissewa, in rheumatism and fever. Its use in the first disease has led to one of its English names, rheumatism-weed. They employ the whole plant, and the decoction is taken in large quantities. It is probable that the relief they find in this mode of employing the plant, is owing to the perspiration induced by it. Professor Barton says he has been "assured on good authority, that it was very extensively employed, and with excellent effect, in many cases of typhus fever, which, under the appellation of 'camp-fever,' prevailed among the American troops, and carried off great numbers of them, during the time of the revolutionary war."* A decoction of the plant, he tells us, was used, and he was of opinion that it did good by exciting copious perspiration. Pippsissewa is a topical stimulant,† and the bruised leaves are said sometimes to induce redness, vesication, and desquamation of the

* Medico-Chirurgical Transactions, Vol. 7.

† Barton's Collections towards an Essay on the Materia Medica—3d ed. part 2. p. 31

skin. This effect of the plant, as it is remarked to occur but seldom, has been said by the author of the "Collections," not to be particularly worthy of attention; yet it seems to derive some more importance from an observation of Dr. Somerville, in the paper already quoted. He informs us, that "in a case of acute rheumatism, in Canada, he saw the leaves of a plant which he supposed to have been the pyrola umbellata, applied as a cataplasm to the shoulder affected: the bruised leaves of the recent plant held to the fire till they were as hot as they could be endured, were applied to the part in a warm towel, for three hours. The application produced great heat, irritation, and redness in the part, followed by such sharp pain, that profuse perspiration over the whole body ensued, which was kept up in bed by warm drinks and clothing, for six hours." Dr. Mitchell relates the case of a gentleman of Philadelphia, who used the Pippsissewa during an attack of rheumatism; the bruised leaves moistened with brandy, were laid on the affected part in the evening: the next morning complete vesication was produced, but the pain was not alleviated. A decoction in vinegar has been said to be useful as an application to bruises. It follows from these facts, that the plant may not be unworthy the attention of physicians, or at least that it may be serviceable in domestic medicine, as a topical stimulant.

It appears from the preceding observations, that the Pippsissewa is chiefly entitled to a place in the Materia Medica, by reason of its diuretic property. In justice, it must be observed, that we are indebted to the experiments and observations of Europeans, for the

discovery of this very general effect of the plant. And if future and more extensive trials of it in dropsical affections, should confirm the high character given to this plant by Dr. Somerville, we have much reason to congratulate ourselves on the accession to the Materia Medica, of so powerful a diuretic; one, not only divested in its introduction to the stomach of any nauseating or other unpleasant consequences, like those of digitalis and squill; but actually exerting a roborant effect upon that organ, manifestly increasing the appetite, and producing very agreeable feelings in the patient, soon after it is taken. Bearing in mind the good effects ascribed to uva ursi, in dropsy, by Dr. Ferriar, of Manchester, we may, from the facts now within our knowledge, together with the circumstance of the affinity of the plant to uva ursi, not hesitate to recommend the decoction of Pippsissewa as a valuable remedy in this disease, at least in conjunction with the use of the lancet. Its reputed efficacy in nephritic affections, if it does not rest on as broad a foundation as the diuretic virtue of the plant, should not be despised; and as a topical stimulant it is worthy of further investigation, particularly as one species of the genus to which this plant lately belonged, Pyrola rotundifolia, has been said to be esteemed by the Indians for its blistering property.* This plant is likewise used in many parts of the United States, in cancerous affections; but it is entitled to no attention in such cases.† It is somewhat remarkable, that Mr.

* **Remarks on the bite of the rattle snake,** by professor Barton, Trans. Am. Phil. Soc. Vol. 3. p. 103.

† I have been informed by Dr. Hewson, the professor of comparative anatomy, that upon showing the C. umbellata to Cæsar A. Rodney, Esq. of Delaware; it was recognised as a plant known in that state by

Pursh* has mistaken, in a medical point of view, the other species of Chimaphila, viz. C. maculata, for that which is the subject of the foregoing remarks; and he has quoted the Indian name incorrectly, calling it *Sipsissewa*; so far as I know, this appellation is never given. That in relation to the medicinal virtues he has confounded these two plants with each other, is evident, from his attributing active properties to Chimaphila maculata, which is not at this time known to possess any. He says he has himself been a witness of a successful cure made by a decoction of the plant, in a very severe case of hysteria; and remarks, "that it, (the C. maculata,) is a plant eminently deserving the attention of physicians." I am inclined to think Mr. Pursh has been misled in this instance by the name of *Pippsissewa*, which is applied in common to both species; for the experiments of Dr. Mitchell go to prove, that the species so highly commended by him is wholly inert, though it is worthy of remark, that the Indians are said to call this species *poison Pippsissewa*, in contradistinction to the C. umbellata, which they call simply, *Pippsissewa*. Besides this, Shœpf says of C. maculata, which he enumerates among his medicinal plants: "infusum foliorum, ante annos aliquot, sub nomine Pippsisseva, frequentissime ad Febres intermittentes, exhibeatur in Pennsylvania."†

the name of "King-cure;" and he informed the doctor it was a popular remedy for scrofula. The fact is only mentioned here, with a view to give all the information on the subject I am possessed of. Certainly we are warranted, from our knowledge of the real virtues of the plant, to believe that its exhibition in this complaint, is strictly empirical.

* Flora Americæ Septentrionalis.

† Mat. Med. Am. p. 68.

Pursh is altogether silent respecting the medical properties of C. umbellata; but after all, it is not unlikely that the C. maculata will turn out to be an active plant. It is not only very like the other in habit, but it may readily be confounded with it, on a slight view. It is most easily distinguished from the C. umbellata, by its leaves, which are of a dark olive green colour, and conspicuously maculated or veined with greenish-white; while in the Pippsissewa which is the subject of this article, the leaves are of a shining green hue, without any spots or veins. In the C. maculata, too, the leaves which are lanceolate, inclining occasionally to ovate, are broad at their bases, and taper to their apexes; they are also deeply sawed on their edges. Those of the C. umbellata are narrowed at their bases, broadest towards their ends; the serratures are not quite so deep, and are nearer together. It must be confessed, that the aspect of the Chimaphila maculata is strikingly indicative of active properties, and the plant is worthy of further investigation.

ŒCONOMICAL USE.

I have been informed by Judge Peters, that it is a common practice in the country, to give a bucket full of the decoction of the C. umbellata, to horses that are unable to stale, with the view, and uniformly with the effect, of relieving them. This is a strong fact in corroboration of the diuretic virtue of the plant, as described in the foregoing pages; and it is also an interesting one to farmers, or other

persons who keep horses, and reside in the neighbourhood where the Pippsissewa grows.

TABLE I.

Fig. 1. represents the Chimaphila umbellata of the natural size. Sometimes two stems supporting a corymbus or kind of umbel of flowers, proceed from the upper whorl of leaves; and not unfrequently the persistent capsules of the last year, supported on the dried stem, remain on the flowering plant.

Fig. 2. the persistent capsules, by which and the leaves, the plant may be recognised when out of flower.

Fig. 1.

Fig. 2.

Drawn from Nature by W. P. C. Barton. Painted, Published & Sold by Kearny & Cox.

SANGUINARIA CANADENSIS.

(Blood-root. Puccoon.)

SANGUINARIA CANADENSIS.

BLOOD-ROOT....PUCCOON.

Indian-paint. Red-root. Turmeric.

Sanguinaria Canadensis. Lin. sp. pl. 723. Amoen. acad. 4. 515. Gronov. virg. 57. ed. nov. 80. Cold. novebor. 126. Corn. Canad. 212. Shœpf. Mat. Med. Ame. p. 85. Dill. elth. t. 252. Ait. Hort. Kew. ed. 2d. vol. 3. p. 286. Pers. Syn. Plant. vol. 2. p. 61. Bot. Mag. 162. Mich. fl. Boreali-Am. 1. p. 309. Willd. sp. pl. Tom. 2. p. 1140. Coxe. Am. Dispen. ed. 2d. p. 549. Thatcher. Am. Dispen. ed. 2d. p. 331. ed. 1st. p. 201. Pharm. Mass. Med. Soc. p. 29. Downey's Inaug. Diss. Barton's "Collections," &c. ed. 3. vol. i. p. 28, 55. Vol. ii. p. 39, 52. Muhl. Cat. Pl. Am. Sep. p. 51. Barton's Prod. fl. Philad. p. 57.

SANGUINARIA.

Gen. Plant. ed. Schreb. n. 878.

Sanguinaria Lin. *Cal.* 2-phyllus. *Pet.* 8. *Caps.* ovata, 1-locularis.

Nat. Syst. Juss. Papaveraceæ—*Classis* XIII. Ordo II.

Sanguinaria L. *Beltharnosia, T. *Petala 8. Stigma capitatum, bisulcum persistens. Capsula ovata oblonga, apice attenuato, bivalvis valvis replo biscapo utrinque seminefero persistenti, appositis caducis. *Folium unicum radicale; scapus 1-florus; succus hæmatodes.* Gen. Plan. de Juss. ed. 1789. p. 236.

Nat. ord. Linnæi. *Rhoedeæ.*

Classis. *Polyandria*, Ordo. *Monogynia*, Lin. Syst.

Sanguinaria Canadensis: folio subreniformi sinuato-lobato, scapo unifloro. Willd. Sp. pl. 2. p. 1140 et Pur. ♃.

Var. β. stenopetala; S. petalis linearibus. Pur. fl. Am. Sep. 2. p. 366.

Sanguinaria Canadensis.

SYNONYMA, &c.

SANGUINARIA. Hort. cliff. 202. Gron. virg. 57. Mill. Dict. n. 1. Giseck. ic. fasc. 1. n. 13.

S. minor, flore simplici. Dill. elth. 355. t. 252. f. 326.

Chelidonium majus Canadense acaulon. Corn. Canad. 212. Moris. hist. 2. p. 257. s. 3. t. 11. f. 1.

Raj. hist. 1887.

Ranunculus Virginiensis albus. Park. theat. 327. Rai. suppl. 314.

β. Sanguinaria major, flore simplici. Dill. elth. 335. t. 252. f. 325.

γ. Sanguinaria major, flore pleno. Dill. elth. 335. t. 252. f. 326.

Houttuyn Lin. Pfl. Syst. 7. p. 185.

Canadisches Blutkraut. Willd. (German.)

Habitat in America Septentrionali.

Folium radicale tenerrime in sinu fovet, et amplectitur infantiam floris, more Osmundæ Lunariæ et est folium unicum cucullatum et *scapus* uniflorus e singula gemma radicis bivalvi. *Stamina* meae vix habuere *Antheras* polliniferas; an dioica? *Lactescens* succo fulvo Chelidonii. Willd. sp. pl. p. 1140.

Habitat in nemoribus Canadae et Floridae.

Pharm. Sanguinariae *Radix* et *semina*.

Qual. Succus saturate aureus, acris corrodens. Flavo tingit; Spirit. Vini colore rubro grato inficit.

Vis: emetica, purgans.

Usus: Rad. decoct. tenue Gonorrhoea; morsura serpentum; morbi biliosi;—Succ. veruccae. icterus, rad. pulv. ℥i. in cerevisia. Shoep. Mat. Med.

DESCRIPTIO UBERIOR.

Planta pulcherrima. Radix præmorsa, fulva, magna et carnosa, succo fulvo exudans Chelidonii. Foliis radicalibus, sub floratione parvulis, subtus glaucis, sanguineo-venosis, circa scapum et florem convolutis. Post florationem folia sunt magna, cordata et profunde sinuato-labata, subtus glauca et fulvo-venosa. Scapo constanter uniflora. Florum petala alba vel roseo-striata, perquam varians numero et magnitudine; frequenter 8. calix evanescens sive caducus. Capsula longa in medio inflata, apice et basi attenuata. Semina plurima rotunda et acuminata. ♃. Florens Martio et Aprili.

Barton's Flora Philadelphica, M.S.

SANGUINARIA CANADENSIS is a plant peculiar to North America. Its systematic name, as well as its English and German appellations, are expressive of the peculiar reddish, or rather orange-coloured juice which pervades every part of it. It is one of the

most beautiful and delicate vegetables of our country. It is particularly interesting from its flowering at a season when there is little or no general verdure, and scarcely any thing in bloom, except trees, the inconspicuous florescence of which does not render them in general very attractive. It is also one of the most abundant plants of our states, growing plentifully from Canada to Florida.

The root of Puccoon is perennial, and of no definite size. It varies in thickness from a quarter, to a half, or sometimes three quarters of an inch in diameter; and in length, from two to four inches. It is generally about the size and length of a finger; fleshy, round, and abruptly terminated; being for the most part tolerably straight in the middle, with a curvature at each end. It is commonly of the shape represented in the plate, though not unfrequently, particularly in the new plant, shorter, and contorted or bent upwards. Occasionally a number of roots are connected together. principally by no closer attachment than that produced by a fasciculation of the numerous fibres originating from the main body. The external colour of the root is brownish, inclining to copper; but being cut, it appears of a red hue, and a bright orange-coloured juice is abundantly discharged. The end always has the appearance of having been cut off by a dull instrument, or broken in removing it from the ground. The scape, which is uniformly terminated by a single flower, proceeds from one end of the root, and rises perpendicularly to the height of six or eight inches. In the early part of the season, that is, about the last of March or first of April, it flowers much under this height; and not unfrequently the flowers are ex-

panded at these periods, when the scape has just appeared above ground. The leaf-stalks, which are thicker than the scape, are long, and arise from the same part of the root. This has relation to a plant in the state of forwardness represented in the plate. In common, by the time the flower is expanded, the leaf-stalk is not more than half the length of the scape; and it then supports a small convoluted leaf, with its lower lobes embracing this part. Both the leaf-stalks and scape, which are encircled at their origin from the root, by a common sheath, are of an orange colour, deepest towards their junction with the caudex, and becoming paler near to the leaves and flowers, where it is blended with green. When broken or squeezed, they emit a coloured liquor like that of the root, but paler. The stain made by this fluid on paper, is a faint yellow. When this plant first comes up, the young leaf is rolled round both scape and flower-bud; and not unfrequently, the flower is opened immediately over the convoluted leaf. The under side of this leaf is glaucous, the disk pale yellowish green, and on both sides the orange-coloured veins are very conspicuous. In favourable situations the plant has often one or two expanded leaves like that in the plate; and these are also of a pale green colour on their upper surface, and glaucous or bluish-white underneath, interspersed on either side with numerous orange-coloured veins. The whole plant becomes much increased in size after the flowering is passed about a month; frequently attaining at this period, the height of fifteen inches, but commonly not exceeding twelve. The leaves are then enlarged to twice or thrice the size of that in the plate, are heart-

shaped, and deeply lobed. The number of lobes is mostly five or seven, and their edges have many small unequal indentations. On each lobe, one large fibre of a bright yellow colour may be seen, running from the leaf-stalk, and sending off many smaller ones. The flowers are white and spreading; and have two deciduous calix leaves. Michaux says there are three, which I believe is an error. The calix is so exceedingly fugacious. that it is common for them to fall off before the flower is expanded; hence they are rarely seen. The petals, which for the most part are pure white, are often tinged on their under side, and sometimes on their upper, with a delicate rose colour. The flower-bud is generally faint rose-coloured. The petals vary exceedingly both in size and number. I have in many flowers counted from seven to fourteen; the common number is about eight. The stamens are numerous, the anthers simple, and orange-coloured. The filaments are simple, shorter than the corolla, and of a yellow colour. The pistil is reddish green; the germ oblong and compressed. Style none. Stigma thich, two furrowed, with a stria the height of the stamens, and permanent. The capsule, or as Willdenow designates it, the siliqua, is oblong, swelling in the middle, acute at both ends, and two-valved. The seeds are numerous, round, and pointed.

The variety described by Mr. Pursh, as having linear petals, I have never seen. Mr. Nuttall informed me, that it was also collected in Georgia by Mr. Lyon. The medicinal properties are in all probability the same, as the variety does not differ except in the flower.

The tendency of Puccoon to multiply its petals in favourable situations, renders it likely that culture would readily produce a double variety; and indeed the variety marked γ. *Sanguinaria major flore pleno*, by Dillenius, as quoted under the Synonyma, proves that such a change has been effected in it. As these double flowers are admired by the florists, the plant is worthy of being introduced in our gardens, where it thrives extremely well. Some roots planted in my garden in 1815, in very uncongenial soil, came up the succeeding year, and bloomed luxuriantly; the roots were again transplanted last Autumn, as well as last Spring, (1817,) and are yet alive.

Sanguinaria Canadensis inhabits a rich loose soil, on the declivities of hills, and the exposed borders of shady woods. Pursh says it generally delights in fertile soil. A large quantity of it grows on the side of a hill at the end of the Botanic-Garden of our University, where the soil is sandy and almost inclining to arid.

In auspicious seasons, Puccoon flowers in Pennsylvania in the last days of March; and even in the common weather of spring months, it may always be found in bloom about the first of April.

Dr. Thatcher has given the Indian name, as *Puuson*. After many enquiries I believe this to be incorrect, and a mere corruption of the true aboriginal name, Puccoon, as given at the head of this article.

CHEMICAL ANALYSIS.

From the chemical analysis of Puccoon made by Dr. Downey, it appears, that there is a gum, a resin, and a saponaceous or extractive matter in the root; and that the gum is in the greatest abundance. It results also from the same experiments, that the active principle of the plant resides chiefly in the gum and extractive matter, but especially in the former.

MEDICAL PROPERTIES.

This plant is emetic and purgative in large doses; and in smaller quantities is stimulant, diaphoretic and expectorant; but it is here presented to physicians principally for its emetic power. It is a powerful medicine, and has produced dangerous effects when incautiously administered. Dr. Shœpf mentions the emetic and purgative virtue of the root. Fifteen or twenty grains of the pulverized root produce powerful emesis; but the medicine must be given in the form of pills, as the powder creates great irritation of the fauces. A decoction or extract will perhaps answer better. The root of this plant when exhibited as an emetic, has been found to dislodge worms from the stomach.* This hint of the anthelmintic property of this part may not, perhaps, be unworthy of notice, though other emetics have sometimes produced the same effect. Dr. Shœpf has

* Barton's Collections, &c. part 2. p. 52.

also mentioned that a weak decoction of the root was used in gonorrhœa, against the bites of serpents, and in bilious diseases; that the juice was employed against warts; and, (on the authority of Colden,) that the powder of the root in the dose of one drachm, was exhibited in jaundice. Dr. Dexter of Cambridge, Massachusetts, says, that in some trials he made with the plant, it proved efficacious as a stimulant and diaphoretic, in doses of one grain of the powdered root, or ten drops of the saturated tincture.* I have never used this plant with a view to its emetic effects, but from the experiments of Dr. Downey it would seem, that the dose recommended by Colden and Shœpf, is much too large. Neither have I much faith in the efficacy of this medicine in jaundice. If it has done good in this disease, it must have acted by its emetic power alone; and in all probability other emetics would do as well. Combined however with calomel, it is not improbable that it would be serviceable. Dr. Thatcher mentions the reputed efficacy of this root in removing jaundice, and says it is believed to be the chief ingredient in the quack medicine known by the name of *Rawson's Bitters.*† A spirituous tincture of the root is said to be frequently used in New England, in various diseases, as a tonic bitter.‡ This is the only form in which I have used the plant. I prepared some of the tincture from the recent roots, last spring. It is intensely bitter, approaching in its permanent impression on the tongue, to acerb. I have used this preparation of the plant in three cases, and with

* Dr. Thatcher's Disp. p. 202. † New Am. Dispensatory, p. 202. ‡ Barton's Collections, &c.

the manifest effect of increasing the appetite and tone of the stomach. It was used in the same way as wine bitters. I can readily believe that in this form it has done good, at least as a prophylactic, in those low marshy grounds of the southern states, where the inhabitants are said to use it to guard them against intermittents, and what the country people call "inward fevers." The dose of the saturated tincture of the root, is from 30 to 80 drops twice a day, increasing or decreasing the number as circumstances may require.* I have found 20 drops thrice a day, a good average dose. A decoction of the root has been recommended in the treatment of old and indolent ulcers; and the powdered root applied a few times in some cases of ill-conditioned ulcers, with callous edges and an ichorous discharge, produced a healthy state of the sores.† I have also heard of the application of the powdered root to a fungous tumor within the nostril, with the effect of producing detumescence, and bringing away frequently, small pieces of the fungus, which in the first instance impeded the progress of air through the nostril, and was supposed to be a polypus. A decoction of Puccoon has been employed with very good effect in that form of sore-throat, called by Dr. Darwin *peripneumonia trachealis.*‡ The medicine proved emetic. From this case Dr. Barton believes that "it promises to be an useful medicine, particularly on the foundation of its emetic and expectorant effects, in cases of cynanche maligna, or ulcerous sore-throat, in cynanche trachealis, or hives, and other

* Thatcher's Dispensatory, p. 202.

† Downey's Inaug. Diss. Phil. 1803

‡ Barton's Collections, part 2. p. 40.

similar affections. Its properties," continues the Doctor, "seem to be considerably allied to those of Seneca snake-root, which has been so beneficially employed in the same cases."* Dr. Israel Allen, of Sterling, and others, have had recourse to this medicine as a substitute for digitalis, in coughs and pneumonic complaints; and on some occasions it is said that it proved as efficacious as Fox-glove, when administered with the same care; and it was found less debilitating than this medicine.†

The leaves and the seeds of Puccoon, are, according to Dr. Barton and Dr. Downey, evidently deleterious. The latter produce effects similar to those brought on by the seeds of Stramonium, or thorn-apple. The experiments of the last-named gentleman were made with the unripe seeds, and he says they exerted "a very considerable influence over the pulse, and a stupifying narcotic quality."‡ They therefore may be considered as incitants; and in common with other articles of that class, they are said sometimes to act as diaphoretics and diuretics.

The best time to collect this plant for medical purposes is, when the seeds are ripe, which is about the beginning of May.

ŒCONOMICAL USES.

The juice of the root of Puccoon makes a fine dye of an orange colour, and is used by the country people for staining flan-

* Barton's Collections, &c. part 2. p. 40. † Thatcher's Disp. p. 202. ‡ Inaug. Diss.

nels and woollen cloths. The Indians paint themselves with it, and use it as a dye for their baskets and articles of ornament; hence one of its vulgar names, *Indian-paint*. From the experiments made by Dr. Downey, with a view to find a suitable mordant to fix this dye, it appears, that the colour of flannel and silk stained with the juice, could never be entirely washed out; that the sulphate of alumine, or alumine alone, and the murio-sulphate of tin, are tolerable good mordants for flannel, cotton, silk, and linen. Murio-sulphate of tin, was the only mordant that fixed the colour on cotton and linen. I have heard that this plant is employed as a dye in the woollen-cloth manufactory near Wilmington, Delaware. If success has been obtained in fixing the colour permanently, there can be no doubt that the dye obtained from Puccoon will become a highly important article in domestic manufactures.

It is said that in Maryland, the farriers give the root of Sanguinaria to horses, to induce sweating; and to promote the shedding of their old coats of hair.

TABLE II.

Fig. 1. Represents the Sanguinaria Canadensis of the natural and most common size, in the early part or middle of April. During the heat of the day, the petals are more horizontal than they can be well represented in a drawing; towards evening they converge; and at night they are wrapped up.

Fig. 2. The capsule or seed vessel, about half mature. As the plant, unless sought after with some care at the period of its inflorescence, will seldom be met with in flower, the capsule and large leaves of the advanced plant, may serve to identify it.

CORNUS FLORIDA.

(Dogwood)

CORNUS FLORIDA.

DOGWOOD.

Large-flowered Cornel; Dog-tree; Box-tree; New-England Box-wood; in the United States.—Great-flowered Dogwood; Florid Dogwood; Male Virginian Dogwood; in England.—Mon-ha-can-ni-min-schi; and Hat-ta-wa-no-min-schi, of the Delaware Indians.

Cornus florida, Lin. Sp. Pl. p. 171. Hort. Cliff. 38. Hort. Ups. 29. Cold. Noveb. 16. Wangenh. Amer. p. 51. t. 17. f. 41. Shœpf, Mat. Med. Am. p. 14. L'Herit. Corn. n. 3. p. 4. Ait. Hort. Kew. ed. 2d vol. 1. p. 261. Marshall, Arbust. p. 35, 36. Bartram's Trav. p. 401. Walk. Inaug. Dis. Barton's Collections, ed. 3d. vol. 1. p. 12, 47. vol. 2. p. 17. Mich. Fl. Boreali-Am. 1. p. 91. Mich. f. Hist des Arb. Fores. vol. 3. p. 138. Catesb. Car. t. 27. Pur. Fl. Am. sep. 1. p. 108. Schmidt, Arb t. 62. Bot. Mag. 526. Pers. Syn. vol. 1. p. 143. Willd. Sp. Pl. p. 661. Roy. Lugdb. 249. Gron Virg. 17. Kalm. it. 2. p. 321. et. 3. p. 104. Mill. Dict. n. 3. Du Roi Harbk. tom. 1. p. 167. Pluk. Alm. 120. Clayt. n. 57. Walt. Car. p. 88. Pict. Reg. 43. p. 3349. *Basseporte.* Muhl. Cat. Am. Sep. p. 17. Bart. Fl. Virg. p. 45. Coxe's Am. Disp. p. 290. 21 ed. 286. Thatch. Disp. p. 114. Pharm. Mass. Med. Soc. p. 13. Barton's Prodr. Fl. Phil. p. 26. Elliot, Car. &c. p. 207. Nuttall, Genera of American Plants, p. 96.

CORNUS.

Gen. Plant. 194.

Cornus. *Cal.* Superus, 4-dentatus, deciduus. *Drupa* nuce 2-bilocularis.

Nat. Syst. Juss. *Caprifolia.* Classis XI. Ordo III.

Cornus. T. L. * Cornuiller. Calix 4-dentatus. Petala 4 parva, basi latiora. Stamina 4 iisdem alterna; antheræ incumbentes. Stylus 1; Stigma 1. Drupa parva, non coronata, fœta nuce 2-loculari 2-sperma. Arbusculæ aut fructices; folia opposita basi nuda, in unica specie alterna; flores in

aliis corymbosi terminales foliis tardiores, in aliis præcociores umbellati aut capitati involucro communi 4-phyllo, interdum magno colorato. Corculum seminis longum, perispermo carnoso involutum. Gen. Pl. Juss. p. 214. ed. 1789.

Nat. Ord. Lin. *Stellatæ*.

Classis *Tetrandria*. Ordo *Monogynia*. Lin. Syst.

Cornus florida, foliis ovalibus, acuminatis, subtus albicantibus; floribus sessiliter capitatis; involucro maximo, foliis apice deformi quasi obcordatis; fructibus ovatis, rubris. Mich. fil. Hist. des Arb. Forest. Am. vol. 3. p. 138. et Mich. Fl. Bor. Am. 1. p. 91.

Cornus florida: arborea; foliis ovatis acuminatis, subtus albicantibus; involucro maximo, foliolis obcordatis; drupis brevi-ovatis, coccineis, apice nigris. Bart. Fl. Virg. Gron. p. 45.

Cornus florida: arborea; foliis ovatis acuminatis, involucris magnis quasi obcordatis, drupis ovatis. Willd. Sp. Pl. 1. p. 661.

SYNONYMA.

Cornus arborea involucro maximo, foliolis obcordatis. Lin. Cliff. 38. Spec. 171.

Cornus mas Virginiana, flosculis in corymbo digestis a perianthio tetrapetalo albo radiatim cinctis. Pluk Alm. 120. t. 2. f. 3. Catesb. Car. 1. t. 27.

Cornus mas floribus quasi in corymbo digestis, perianthio albo e quatuor foliis composito radiatim expanso cinctis. Clayt. n. 57.

Houttuyn Lin. Pfl. Syst. 1. p. 237.

Schönblühender Hartriegel. Willd. (German.)

Habitat in Sylvis Sep. Am. $\frac{1}{2}$.

Pharm. Corni floridæ Cortex, (caulis et radicis;) Gemmæ; Flores

Qual. Amara. tonica.

Vis. Adstringens. Gemmar. carminativa.

Usus. Febres intermittentes. Ligni usus mechanicus.

Decoct. Corni, a decocto corticis peruviani gustu vix discernendum; Intermittentes aeque certo curat ac Cort. Peruv. Vires addita Serp. Virg. acuuntur. Rad. Sassaf. et Cort. Corni $\overline{aa}$ $\frac{z}{3}$vj. Coqu. cum aquæ libris viii. ad remanetiam lb. i. ad ulcera cancrosa, maligna tepide et frequenter applicata, prodest. Shoepf. Mat. Med. Am. p. 14.

Arbor parva, conspicua involucris florum maximis coloratis. Fructibus rubri. Ineunte frondescentia floret. L'Hert. Cor. 3.

Dogwood is so common throughout the United States, that it is well known to most people. It is the largest tree of its genus, and indeed attains such an height, that it is described by Michaux the

younger, in his elegant work on the forest trees of North America. Its wood, its flowers, and its bark, the latter entitling it to a place in this work, render it an extremely interesting tree. The name by which it is generally known throughout the United States, is that of Dogwood; it is recognised less frequently by that of Boxwood. But it is also known in different states, and even in different parts of the same state, by the various other names enumerated at the head of this article. Michaux f. in the work alluded to, informs us, that in the state of Massachusetts, between the 42d and 43d degrees of latitude, the Dogwood is first observed; and that it is afterwards found without interruption in all the eastern and western states, as well as in the Floridas as far as the Mississippi. He remarks that in all this tract of country, it is the most abundant of all the arborescent vegetables; but that it is comparatively most plenty in New Jersey, Pennsylvania, Maryland and Virginia, wherever the soil is new, unequal and gravelly. More to the south, in the two Carolinas, Georgia, and the Floridas, it is only seen on the borders of marshes, and not in the pine-barrens, where the soil is too sandy and arid for it to grow. In the more fertile portions of Kentucky, and the eastern section of Tennessee, it does not grow abundantly among the forest trees, but is only found where the soil is stony and indifferent.* According to Michaux, the Cornus florida sometimes attains the height of 30 and 35 feet, and a diameter of 9 and 10 inches. It is usually,

* Michaux, fil. Arbres Forest.

however, 18 or 20 feet high, by 4 or 5 inches in diameter. The trunk is strong, invested with a rough blackish bark, which is tolerably thick, and very much separated into fissures or cracks. The branches are numerous, spreading, and disposed regularly; being sometimes opposite to each other, and occasionally arising by fours. Michaux remarks, that the younger branches take a semicircular direction upwards. The leaves are about three inches in length; opposite, oval, entire, acuminated, slightly glaucous or whitish underneath, and presenting on their upper surface many conspicuous ridges. Towards the end of summer they become speckled with black dots, and on the approach of winter turn to a dull red colour. Michaux informs us, that in the states of New York and New Jersey, the flowers of this tree are fully opened about the tenth or fifteenth of May, at which time the leaves only begin to be developed. In Pennsylvania the tree is in full bloom about the 15th of May, in ordinary seasons. It flowers very regularly; so much so, that it is said by the late Professor Barton,* that formerly "some of our southern tribes were accustomed to name the spring season from its flowering." The flowers are terminal on the little branches. They are small, of a greenish yellow colour, and aggregated in numbers. They are garnished with an involucre from three to four inches large, which surrounds them. This involucre is composed of four large obcordate folioles, of a fleshy or coriaceous texture. They are white, sometimes tinged with violet. The outer extremity of each foliole is notched, having the appearance of disease or injury. The notches

* "Collections," &c.

are purplish, or dusky rose coloured. I have understood that there is an individual variety of this tree in the woods near Philadelphia, having bright red or rose coloured involucres. This variety, which I have not seen, must be an exceedingly magnificent tree, and highly ornamental. It is to the large involucres that the flowers of this cornel owe their character for elegance. When Dogwood is in full flower, it is a strikingly beautiful tree, and very ornamental to the forests; the more so from the early period of its flowering. The calix is monophyllus, small, and four-toothed. It is deciduous, never continuing until the berries are ripe. The corolla is composed of four petals. The stamens are four in number, and equal. Pistil one, consisting of a roundish germ, beneath. The style filiform, and nearly the length of the corolla. Stigma obtuse.

The flowers are succeeded by oblong berries, of a rich, shining, crimson or carmine colour; always collected together to the number of three and four, as has been remarked by Michaux, and as I also have often observed. They are ripe about the middle of September; and are then eagerly devoured by different birds, such particularly as the Turdus migratorius, or Robin; the Turdus rufus, or Thrush; and I have sometimes seen the rare bird called Wood-thrush, Turdus minor, employed busily in eating them. It must be a food peculiarly grateful to this melodious little songster. to induce it to leave its favourite and almost constant haunts, the summits of the tallest forest trees.

CHEMICAL ANALYSIS.

From the chemical investigation of the properties of the cornels, made by Dr. Walker,* it appears: that upon distilling equal quantities of the pulverised bark of the root of Cornus florida and sericea, and of red Peruvian bark, a fluid was obtained from the latter, differing from that procured by the two former in no respect, but in possessing a flavour, not aromatic, but peculiar to the bark. The fluid was clear and transparent. It appears further, that upon subjecting these materials to a second distillation, the fluids obtained had a more disagreeable smell than those from the first, and a taste somewhat acerb. The fluid yielded by the Corni acquired a lemon colour; that from the Peruvian Bark was tinged with red. The following results are given by Dr. Walker, of the changes which took place upon testing these different fluids:

The fluid distilled from

	With litmus paper.	*Oxy-sulphate.*	*Ace. Lead.*	*Carb. Alumen.*
the Corn. flor.	Red.	Black.	Precipitate.	Effervescence.
the Corn. seri.	Red.	Black.	Precipitate.	Effervescence.
the Cort. Peru.	Red.	Brown.	Precipitate.	Slight Effervescence.

* Inaugural Dissertation, p. 24 and 25.

The inference deduced from this experiment is, that gallic acid is contained in the three substances used, and that it exists in greater quantity in the Corni than in the Bark. The gallic acid also comes over in distillation, in an uncombined state. A decoction of the bark of the root of Cornus florida, yields by evaporation, a gum-like mass. Two drams of this gum were obtained by Dr. Walker, from seven and an half ounces of the decoction. With a view to ascertain the constituent parts of this mass, the doctor "macerated two drams in successive quantities of alcohol, until the last portion ceased to be changed in colour and taste; this, like the former portions, was separated from the gum by the filter; after the gum was dried upon the filter it was collected, and weighed only half a dram. The dried gum was then dissolved in a small quantity of water. The solution was imperfect, not transparent, nor bright coloured; it possessed no particular taste, which might not be ascribed to its viscid consistence; and it produced no change of colour with a solution of the oxy-sulphate of iron." Suspecting, from the want of transparency, that there might be some mucilage in the solution, the doctor "added in small portions, diluted sulphuric acid to the solution; a precipitate slowly fell to the bottom in a coagulated form. When the precipitation had ceased, it was separated from the solution by the filter, and evaporated to dryness, at the same time with the solution. By weighing each residuum, the mucilage was detected in the proportion of three to five; that is, eighteen grains of gum, and twelve of mucilage."* Observing the solution to turn dark by

* Inaugural Dissertation, p. 24 and 25.

the addition of the acid, Dr. Walker inferred that the want of transparency in the gummy solution, was not entirely owing to the presence of the mucilage; but "to the fine powder of the medicine, which the viscidity of the fluid suspended and concealed; and probably the change of colour noticed above, was owing to the carbonation of these particles by the acid."* The Cornus florida contains more extract and gum, than the Peruvian bark, and is more soluble in water; while the latter, containing more resin, is more easily soluble in alcohol. The powder of the bark of Cornus florida is more miscible in water than that of the Cinchona, for the same reason.†

It appears from a summary of Dr. Walker's experiments, that the Dogwood and Peruvian Bark possess the same ingredients: gum, mucilage, and extract; and that the last contains the gallic acid, and tannin, though in different proportions. The Dogwood possesses most of the gum, mucilage and extract; and the Peruvian Bark, the most resin. The extract and resin possess all their active virtues; the extract all their tonic power. The resin when separated from the extract is stimulant only; and probably the tonic power of the extract is increased, when combined with a portion of the resin, as in the spirituous tincture.‡

MEDICAL PROPERTIES.

The similarity between the Dogwood and the Peruvian bark, in their sensible qualities, their chemical analysis, and their action on

*Inaugural Diss. p. 25. †Ibid. p. 28. ‡Ibid. p. 29.

the incised and dead fibre, (as shown in the experiments of Dr. Walker,) sufficiently proves an identity in their medicinal effects. And actual experience with the bark of the Cornus florida, by many physicians, entitles it to be ranked among the best tonics of our country. As early as the year 1787, Shœpf was acquainted with the medicinal virtues of this tree; and he speaks of it as a bitter and a tonic, as well as of its use in intermittent fevers. The bark is likewise astringent. Dogwood is also a stimulant; for according to Dr. Walker's experiments, the internal use of it always rendered the pulse quicker than natural, and often fuller and stronger.* Professor Barton remarks, speaking of the two cornels; "I can add but little from my own experience concerning the application of these two species of Cornus to the cure of diseases. I believe, however, that it may, with entire safety, be asserted, that as yet we have not discovered within the limits of the United States, any vegetables which have been found so effectually to answer the purpose of the Peruvian bark, in the management of intermittent fevers, as the Cornus florida and Cornus sericea."† It appears from the account given by the late Dr. Amos Gregg of Bristol, of the use of the Dogwood in decoction, that it produced pain in the bowels, which however was readily relieved by a few drops of laudanum. He believed this property of inducing pain was confined to the article in its recent state; and he further observes, that he never found it to disagree with the stomach, by exciting cathartic or emetic effects, after it was

* Inaugural Diss. p. 46.

† "Collections," &c.

a year collected. Dr. Gregg says he "used the Dogwood twenty-three years, during which time he found its virtue such as to convince him it was not inferior to the Peruvian bark in curing intermittents, nor inferior as a corroborant, in all cases of debility."* He gave the powder in doses of thirty-five grains. This quantity he found equal to thirty grains of the Peruvian bark. In some cases he combined the Dogwood with the Virginian snake-root, in the proportion of thirty grains of the former and six of the latter; repeated every half hour for two days. He concludes his communication to Dr. Walker with this observation: "I have often used the Dogwood joined with Gentian, Columbo, Chamomile, and with Aromatics in bitters, and have found it equal to the Peruvian bark, and therefore conclude it is a valuable medicine."† Dogwood has also been used in combination with the bark of the Liriodendron tulipifera, or tulip-tree, both in decoction and in substance. The bark of the root, stem, and smaller branches, is used. That of the root is by some thought most efficacious. An infusion of the ripe berries in spirit has been used in intermittent fevers. We learn that our Indians use an infusion of the flowers for the same purpose; hence we may infer, that these are possessed of the same tonic property as the bark. This infusion of the flowers has been recommended in flatulent colic; and Dr. Barton says he has used it as a tea.‡ The Professor also mentions from the information of the Rev. Dr. Nicholas

* Walker's Inaugural Diss. p. 49.

† Inaug. Diss. p. 49.

‡ Barton's Collections.

Collin, of Philadelphia, that in an intermittent fever which prevailed in West Jersey, about thirty years ago, the bark of the Dogwood was found more useful than the Peruvian bark. It was used in decoction. Dr. Barton upon this subject makes this remark: "I must candidly confess, however, that I have heard of more instances of the failure of this cornel than of the Peruvian bark. But has any vegetable," he continues, "so completely prevented the recurrence of the paroxisms of intermittents as the last mentioned one."*

Michaux in his work on the forest trees of North America, has noticed the medicinal properties of this tree. He speaks of the liber or inner bark being a fine bitter, and very useful in intermittent fevers. The taste of Dogwood, like that of the other medicinal species, is "a more simple and agreeable bitter than the Peruvian bark; it has nevertheless considerable austerity combined with it; the decoction possesses most of the latter, and the hot triturated infusion the next. The decoction and hot infusion are less elegant preparations. The hot menstruum holds in suspension some of the fine powder, which is not entirely deposited by cooling, nor in passing through the filter."†

From all the information I can collect on this subject, and no indigenous plant has excited more attention, I am disposed to believe: that as a tonic, the powdered bark of Cornus florida, is well en-

* "Collections," &c.

† Walker's Inaug. Diss. p. 23.

titled to the notice of physicians; and it certainly may be safely recommended as a good substitute for the cinchona, particularly as that which now fills the shops, is seldom genuine, but adulterated by oak-bark, and frequently altogether a fictitious acticle. I have never used the Dogwood, in any form as a medicine, and therefore call the attention of our physicians to it, entirely on the authority of those who have written on the article, and frequently employed it. I know it is much used in different parts of the United States, and I have uniformly heard its virtues commended. Its superior miscibility or solubility in water, to the Peruvian bark, may occasionally render its use more convenient than this last substance.

ŒCONOMICAL USES.

The wood of the Cornus florida is of a very fine texture, hard, compact, heavy, exceedingly durable, and susceptible of a beautiful polish. Hence it is much used by cabinet-makers and joiners, for ornamental inlaying. The sap is white, and the heart chocolate colour. This wood answers very well for plane-stocks, squares, two-foot rules, mallets, and for the handles of gimlets, gauges, hand-chissels, and other light tools. Indeed its properties so nearly resemble those of box-wood, that it may be profitably substituted for it in almost all its common uses; and in these it is improved in appearance by a faint stain of yellow dye. This gives it the exact resemblance of box. I have no doubt, that if it were felled at the proper time, and well-seasoned, it would answer extremely well for

flageolets, fifes, childrens' whistles, and all the humbler kinds of wind-instruments. Michaux remarks that for whatever purpose it may be destined, it should not be worked up till thoroughly dry; otherwise it is apt to split. The moderate size of the tree will always circumscribe the employment of its wood, to the various uses I have mentioned. Michaux, who has so industriously inquired into the œconomical uses of the wood of our forest trees, says some farmers make the teeth of their harrows, and the fastenings of the collars of their horses, of this wood. That the young shoots, four or five years old, are used for light hoops on little kegs; but its use in this latter way he says is very limited. That in the middle states they use the wood in mills, for the cogs of the wheels; and in many parts of the country the peasantry make forked collars for their hogs, to keep them from penetrating beyond the fences which enclose the cultivated fields, of the Dogwood, the branches of which are naturally scattered. The wood is excellent for burning, he remarks, but its small size does not render it saleable for this purpose in the large cities.*

The wood of the Cornus florida is much used by Dentists, in the insertion of artificial teeth; and the young branches stripped of their bark, and rubbed with their ends against the teeth, render them extremely white. The creole negroes who inhabit Norfolk in Vir-

* Arbres Forest.

ginia, in great numbers, are in the constant practice of substituting the Dogwood twigs, for a West India shrub, in cleansing their teeth. The striking whiteness of these, which I have frequently observed, is a proof of the efficacy of the practice. The application of the juice of these twigs to the gums, is also useful in preserving them hard and sound.

The powdered bark of Dogwood makes a good ink, which was used by Dr. Walker, in writing his thesis. The following is the formula.

½ oz. Pulv. Cort. Cor. flor.	Mixed together.
2 dr. Sulph. Iron.	
2 sc. Gum. Arab.	
16 oz. Aqua font.	

The ripe berries infused in spirit or brandy, afford an excellent wine-bitter, for common purposes,* and as a morning bitter. A decoction of the bark of Dogwood has been employed with good effect in a malignant fever, called the "yellow water," "Canada distemper," &c. which, within the last twelve years has carried off a great number of horses in the United States.†

* Barton's Collections. † Ibid.

TABLE II.

Fig. 1. Represents a flowering twig of Dogwood, at which time the young leaves are small.

Fig. 2. The fruit and leaves of autumn.

Fig. 3. A single flower, with stamens, petals, and calix.

Fig. 4. The calix and pistil.

Fig. 1.

Fig. 5.

Fig. 2.

Fig. 3.

Fig. 4.

TRIOSTEUM PERFOLIATUM.

(FEVERWORT.)

(Red flowered fever-root.)

TRIOSTEUM PERFOLIATUM.

FEVERWORT....RED-FLOWERED FEVER-ROOT.

Fever-root. Gentian. Bastard Ipecacuanha. Wild-Coffee. Dr. Tinker's weed. False Ipecacuan White Gentian. Sweet-Bitter. Cinque. Perfoliate Fever-root.

TRIOSTEUM PERFOLIATUM. Lin. sp. pl. 250. Amoen. acad. 4. p. 516. Dill. elth. 394. t. 293. f. 378. Mill Dict. n. 1. Vahl. Symb. 3. p. 37. Gron. virg. ed. n. 31. Cold. noveb. 244. Willd. Sp. pl. Tom. i. p 990. Shœpf. Mat. Med. Am. p. 23. Pers. vol. 3. p. 214. Ait. Hort. Kew. ed. 3. Vol. i. p. 381. Mich Fl. Boreal. Am. vol. i. p. 107. Muhl. cat. Am. Sep. p. 23. Pur. fl. Am. Sep. vol. i. p. 162. Barton's "Collections," &c. vol. i. p. 29. Coxe's Am. Disp. ed. i. p. 679. ed. 3d. p. 634. Barton's Prod. fl Phil. p. 31. Elliot. fl. car. &c. Nuttall, Genera Am. Plants.

TRIOSTEUM.

TRIOSTEUM. Lin. *Cor.* monopetala, subaequalis. *Cal.* longitudine corallae. *Bacca* 3-locularis, 1-sperma. infera.

Nat. Syst. Juss. *Caprifolia.* Classis XI. Ordo III.

TRIOSTEUM. L.* Calix 5-fidus, laciniis lanceolatis persistentibus, basi bracteatus. Corolla vix calice longior, tubulosa 5-loba inæqualis. Stamina 5, non exserta. Stigma crassiusculis. Bacca coronata obovata 3-locularis, 3-sperma. *Herbæ erectæ; foliorum petioli infra juncti; flores plurimi axillares sessiles.* Gen. Plant. de Juss. p. 211.

Classis *Pentandria.* Ordo *Monogynia.* Lin. Syst.

TRIOSTEUM PERFOLIATUM. T. foliis ovalibus acuminatis, basi abrupte angustatis, latius angustiusve connatis: axillis uni-plurifloris: corolla obscure purpurea. Mich. Fl. Boreal. Am. sub. synon. T. maji

SYNONYMA.

TRIOSTEUM majus. Mich. Fl. Boreali-Am. Vol. i. p. 107.

TRIOSTEUM foliis connatis, floribus sessilibus verticillatis. Vahl. symb. 3, p. 37.

TRIOSTEUM floribus verticillatis sessilibus. Mill dict. n. 1.

Triosteum perfoliatum.

Triosteospermum, latiore folio, flore rutilo. Dill. elth. 394. t. 293. f. 378

Houttuyn Lin. Pl. Syst. 5. p. 612.

Breitblättriger Dreystein. Willd. (German.)

Habitat in America Septentrionali. ♃.

Folia perfoliata. Willd. Sp. pl. Vol. i. p. 990.

Pharm. *Triostei* Radix.

Qual. amara. odor. pl. nauseosus; sapor herbaceous.

Vis. emetica.

Usus: febres intermittentes, pleuritis. Shœpf. Mat. Med.

DESCRIPTIO UBERIOR.

Planta bi vel tri-pedalis, aliquanto rara, et tota interdum purpurascens. Radix perennis, horizontalis, elongata. Caules multi, simplices, erecti, cylindrici. Folia magna, oblongo-ovalia, acuminata et fere connata, in basi panduriforma terminata. Versus apicem, basi attenuata et amplexicaules; omnes subtus dense pubescentes, cum nervis et costis conspicue prominentibus. Folia in summitate, sub florescentia, minora sunt, et convoluta; postquam magna et purpurascentia. Flores in axilis foliorum, venticillatæ apparentes. Corolla vix calice longior, tubulosa, curvata, basi gibbosa, et apice in quinque lobis auriculatis, incisa; laciniæ cordatæ et clausæ. Stamina quinque, in tubo corollæ tecta: Pistillum ultra corollam; stigma crassiusculum. Laciniæ calicis quinque, persistentes, lineares, ciliatæ, et omnino plerumque purpurascentes. Germen inferius, uno-bracteatum. Bacæ coronatæ, obovatæ, purpureo-coccineæ, tri-loculares, et semina tria dura complectens.

Barton's Flora Philadelphica, MS.

The root of Triosteum perfoliatum is perennial, horizontal, about eighteen inches or two feet long, three quarters of an inch in diameter, and nearly of an uniform thickness from the extremity to within two or three inches of the origin of the stems. At this place it is contorted, tuberculated, or gibbous, and of a brownish colour. The colour of the horizontal caudex is yellow ochre without, and whitish internally; and the fibres which proceed from it, are of an ochroleucous hue. These are sometimes so large that they may be considered rather as branches or forks of the main root. The plant

is from two to three feet high, and bushy, several stems arising from the same root. In favourable situations I have seen it near four feet tall. The stems are about 3-8ths of an inch in diameter, simple, erect, cylindrical, pubescent, and of a green colour. The leaves are large, oblong-oval, acuminate, somewhat panduriform towards their base, where they become suddenly narrowed. They are mostly connate, until they approach the fourth pair from the top: these upper ones are more attenuated at their bases, and rather amplexicaule. The under surface of all the leaves is covered with a soft, dense, bluish-white pubescence, conspicuously apparent on the middle rib and nerves. On their upper surface, though the pubescence cannot be observed readily by the naked eye, it is discernible by the glass, more sparse than below. The nerves are numerous, and commonly alternate, as respects their union with the costa. The two uppermost pairs of leaves are small and closely convoluted, while the plant is in flower. After the florescence is past, they are developed to the full size of the others, or become rather broader at their middle, and assume a brownish purple colour. I have sometimes observed the whole plant of this hue, though in general it is confined to the upper portion. The flowers are axillary, sessile, and arranged in triplets round the stem, appearing whorled. The corolla is reddish purple above, striated below with lake, blended into white, and every where covered with a dense pubescence. It is tubular, curved, and widest at the top, where it is divided into five auriculated segments or lobes; the laciniæ being cordate and closed on each other. The lower end of the tube terminates in an abrupt

gibbosity, which is articulated with the germ. The stamens are five in number, inclosed within the corolla, and alternate with the lobes or laciniæ. The pistil is somewhat longer than the stamens, and appears conspicuously above the corolla. Stigma oblong. The calix is composed of five linear segments obscurely ciliated on their margins, of a dark purplish colour, and half an inch long. The germ to which they are articulated, is beneath; and garnished with a single green bract, longer and broader than the calix leaves, and proceeding from its base. The berries succeed to the flowers, generally in the number of six to each axil; sometimes there are but three, but occasionally nine, in luxuriant plants. They are ovate, of a dark purple colour, with three divisions, and contain three hard seeds. They ripen in September.

This plant is somewhat rare, though I have seen it on the rocky limestone hills a little beyond the Maryland line, on the York and Baltimore road, in great quantities. It is also very frequent in the hilly woods bordering the Conestogo Creek, near Lancaster in Pennsylvania; and remarkably abundant in a thicket about one mile from the town of Lancaster, on the seat of Charles Smith, Esq. In the vicinity of Philadelphia it is very rare. Indeed I have only found it in a wild state, on the Schuylkill, near Lemon-hill. It delights in rich limestone soil, on rocky or stony ground, preferring the shade; but is often found in different situations. Its range is, from the northernmost state of New England to Carolina; and probably further south. Flowers in June.

MEDICAL PROPERTIES.

Triosteum perfoliatum is a mild cathartic, and it is for this virtue that the plant is here noticed. I am aware that Shœpf speaks of it as an emetic only, and alludes to its use in intermittent fevers and pleurisy. One of the common vulgar names also, Bastard Ipecacuanha, indicates the well-known emetic power which in unquestionably possesses. But it is only in large doses that vomiting is produced. In the quantity of twenty or thirty grains it is a good cathartic. It has been said on some occasions to operate as a diuretic;* but Professor Barton who observed this effect, justly remarks that this may have been only an accidental circumstance, rhubarb having been known by C. Piso, to produce the same effect.† The part of the plant used for medical purposes, is the cortex, or bark of the root. When the root is dry, it is brittle, and is pulverised easily. Perhaps it is not necessary to separate the bark from the ligneous part; for in all likelihood the whole root is endued with the same medicinal property. The Autumn is the proper time to collect the plant for use.

ŒCONOMICAL USE.

I learned from the late Rev. Dr. Muhlenberg, that the dried and roasted berries of this plant, were considered by some of the Ger-

* Barton's "Collections." † Ibid.

mans of Lancaster county, as an excellent substitute for coffee, when prepared in the same way. Hence the name of wild coffee, by which he informed me it was sometimes known.

TABLE IV.

Fig. 1. Represents the upper portion of the plant of the natural size.

Fig. 2. A flower with the calix and bract.

Fig. 3. The corolla separated.

Fig. 4. The same opened, showing the situation and insertion of the stamens and pistil.

Fig. 5. A ripe berry, with the crown formed by the persistent calix.

Drawn from Nature by W.P.C. Barton.

Bannor, Hallance, Kearny & Case.

GILENIA TRIFOLIATA.

(Indian-physic.)

GILLENIA TRIFOLIATA.

INDIAN PHYSIC.

Ipecacuanha. Beaumont-root. Ipecacuan. American Ipecac. Three-leaved Spiræa. Indian hippo Meadow-sweet. Dropwort. Bowman's-root.

GILLENIA trifoliata. Lin. Sp. Pl. 702. Amoen. Acad. 4. p. 523. Hort. Cliff. 191. Hort. Ups. 131. Roy. Lugdb. 277. Gron. Virg. 55. Pluk. alm. 393. t. 236. f. 5. Raj. Suppl. 330. Moris. Hist. 3. p. 323. Gron. Virg. ed. n. 77. Cold. Noveb. 117. Mill. Dict. n. 7. Mœnch. Meth. Suppl. p. 286. Bot. Mag. 489. Mill. ic. 256. Coxe's Am. Disp. ed. 3d. p. 569. Thatcher's Disp. p. 343. Pers. Syn. Pl. vol. 2. p. 47. Barton's Cullen. vol. 2. p. 335. Chapman's Elements of Mat. Med. &c. vol. 1. p. 111. Shœpf. Mat. Med. Am. p. 80. Mich. Fl. Boreali-Am. vol. 1. p. 294. Willd. Sp. Pl. Tom. 2. p. 1063. Ait. Hort. Kew. ed. 3d. vol. 3. p. 257. Pursh Fl. Am. Sep. vol. 1. p. 343. Muhl. Cat. Am. Sep. p. 23. Barton's Collections, &c. ed. 3d. vol. 1. p. 27. vol. 2. p. 39. Barton's Prod. Fl. Phil. p. 55. Nuttall, Gen. Am. Plants.

GILLENIA, (Mœnch.)

Cal. Inferus, campanulatus, seu campanulato-tubulosus, 5-fidus. *Petala* 5. *Styli* 5. *Caps.* 5-locularis, polyspermæ.

Nat. ord. Lin. *Senticosæ.*

Nat. syst. Juss. *Rosaceæ.* Classis XIV. Ord. X.

Classis *Icosandria.* Ord. *Pentagynia.* Lin. Syst.

GILLENIA trifoliata. G. herbacea: foliis trifoliatis; foliolis lanceolatis: floribus laxe subpaniculatis, pentagynis: calice tubuloso campanulato. Mich. Fl. Bor. Am. sub. synon. Spiræae trifoliatæ.

Gillenia trifoliata.

G. foliis ternatis lanceolatis serratis subæqualibus, stipulis linearibus integris, floribus terminalibus laxe paniculatis 5-gynis, calice tubuloso campanulato. Pur. Fl. Am. Sep. sub. synon. Spiræae trifoliatæ.

SYNONYMA

Spiræa trifoliata. Lin. Sp. Pl.

Willd. Sp. Pl. vol. 2. p. 1063.

Mich. Fl. Boreali-Am. vol. 1. p. 294.

Pursh Fl. Am. Sep. vol. 1. p. 343. et aliorum Auctorum.

Spiræa foliis ternatis serratis subæqualibus, floribus subpaniculatis. Sp. Pl. 702. Mill. Dict. n. 7. et ic. t. 256.

Filipendula foliis ternatis. Hort. Cliff. 191. Hort. Ups. 131. Roy. Lugdb. 277. Gron. Virg. 55.

Ulmaria major trifolia, flore amplo pentapetalo, virginiana. Pluk. Alm. 393. t. 236. f. 5 Raj. Sup. 330.

Ulmaria virginiana trifolia, floribus candidis amplis longis et acutis. Moris. Hist. 3. p. 325.

Houttuyn Lin. Pfl. Syst. 7. p. 137.

Dreyblättrige Spierstaude. Willd. (German.)

♃. Willd. Sp. Pl. tom. 2. p. 1063.

Pharm. *Gilleniæ trifoliatæ* Radix.

Vis. Emetica purgans. dos. ℈ij-℥i aeque tuto operantur ac unquam ipecacuanha, Shœpf. Mat. Med. Am. p. 80.

DESCRIPTIO UBERIOR.

Radix perennis. Caulium plurium, versus summitatem ramosarum, et plerumque rubicundarum. Folia ternata; foliola supra lanceolata, serrata, sub-æquales: infra obtusata in acumine abrupte terminata, et interdum in unico laterali lobo incisa. Stipulis linearibus, et nonnunquam subulatis. Floribus formosis, terminalibus, in laxa panicula dispositis. Petala lineari-lanceolata, obtusiuscula, et ubi cum calice juncta, sub-unguiculata. Colore sunt alba, rariter albido-rosea. Calix tubuloso-campanulatus, ventricosus, in basi attenuatus. Stamina inclausa brevia; antheris parvulis. Capsula 5-locularis, polysperma. Habitat in umbrosis sylvis montosis, plurimum humidis soliis gaudens. Floret Junio. Barton's Flora Philadelphica, MS.

The root of Gillenia trifoliata is perennial. It is composed of numerous, long, brown, slender caudexes, radiating from a thick

tuber. Some of these are knotted for a considerable portion of their length, like one or two of those represented in the plate. The number of stems proceeding from the root varies. Sometimes there is only a single one, and occasionally many arise from the same root. The stems are branched above; about two and an half, or three feet high; round, and commonly of a reddish colour. The leaves are universally ternate. The leaflets are lanceolate, serrate, and nearly equal. The lower ones, broad towards the apex, and terminating in an abrupt acumination, with occasionally a deep, lateral incisure forming a lobe, like the out-line leaf represented in the plate. The stipules are linear, occasionally on the smaller branches, subulate, and always entire. The flowers are terminal, forming a loose pannicle. They are composed of five linear-lanceolate petals, somewhat obtuse, and bent nearly in a right angle, at the distance of an eighth of an inch from their insertion. The calix is tubular, campanulate, ventricose, tapering at the base, and terminating in five pointed segments. Stamens 20 in number, short. Anthers small. The capsule is 5-locular, and contains many seeds. This species of Gillenia inhabits shady woods, on mountains and hills, from Canada to the high gravelly banks of the Ohio, in a southwestward direction. It is then superseded by its congener, G. stipulacea. Pursh says it is found as far as Florida, in shady woods and on bogs. It is found plentifully in the neighbourhood of Philadelphia, in hilly woods, and sometimes on the borders of rivulets. It is in full flower in June.

Gillenia trifoliata may be readily propagated by seeds, or by transplanting roots. The seeds should be sown in a shady border, soon after they are ripe; for if they are sown in the spring, they will not come up till the year after, and frequently fail. When the plants appear, they must be kept clean from weeds, but must not be removed till autumn, when their leaves begin to decay. They may then be either transplanted where they are destined to remain, or into a marshy bed, where they may grow a year or two, to get strength before they are finally disposed of. The plant delights in a shady situation and a moist soil.

MEDICAL PROPERTIES.

Gillenia trifoliata has justly obtained a place in the Dispensatories of our states, under the head of Emetics. In many respects, it has been compared to the officinal ipecacuanha. It appears that its medical virtues were not unknown to Linnæus, who speaks of its reputed powers, as somewhat extraordinary in a plant belonging to his natural order *senticosæ.* "Spiræam trifoliatam ipecacuanham vocant et vomitum facere dicunt, quod sane singulare esset in hoc ordine," (alluding to the *Senticosæ.**) Though the stem and leaves of this plant, as well as the root, are reputed to possess emetic powers, it is the root alone which has been used by the different physi-

* Caroli a Linne, M. D. Prælectiones in Ordines Naturales Plantarum. Edidit P. D. Giseke, p. 449. Hamburgi: 1792.

cians who have employed it. It has been said that the cortex of the root exclusively, is endued with emetic virtue, and the powder of this part has accordingly been uniformly recommended for use. The ligneous portion is reputed to be inert. Probably the idea of inactivity in this woody part, has been carried too far. Shœpf, in his account of the medicinal virtues of Indian-physic, is silent on this point. It is said to possess a tonic power, with its emetic virtue,* and hence has been thought peculiarly beneficial in the intermittent fever. I have but little reliance on this opinion, and it is indeed of secondary importance. The dose is thirty grains of the powder for an adult. In this quantity it is a safe and efficacious emetic. It is said the country people have frequently used the plant so incautiously, as to be under the necessity of resorting to medical aid. This proves nothing but its activity. Shœpf says, in doses, from two scruples to a drachm, it operates as safely and as effectually as ipecacuanha. The roots should be collected in September.

ŒCONOMICAL USE.

It is said that the Indian-physic is often given to horses to mend their appetite,† and to remove their dyspeptic symptoms. Of this I know nothing myself, neither have I ever heard the manner in which it is administered to these animals.

* Barton's Collections.

† Barton's Collections

TABLE V.

Fig. 1. Represents a portion of Gillenia trifoliata of its natural size.

2. The root.

3. An outline of one of the lower leaves.

4. A flower separated from the peduncle.

5. The calix.

6. The same opened, showing the stamens.

7. The pistil.

8. The same showing the five styles.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

GILLENIA STIPULACEA.

(Small-flowered Indian-physic.)

GILLENIA STIPULACEA.

SMALL-FLOWERED INDIAN-PHYSIC.

GILLENIA stipulácea. Willd. enum. plant. Pursh. fl. Am. Sep. vol. i. p. 343.

GILLENIA stipulacea. G. foliis ternatis lanceolatis inciso-serratis subæqualibus, stipulis foliaceis ovatis inciso-dentatis, floribus terminalibus laxe paniculatis 5-gynis, calice campanulato. (Willd. enum. et Pursh. fl. Am. sep. sub nomine Spiræae stipulaceæ.)

DESCRIPTIO UBERIOR.

PLANTA simillima Gilleniæ trifoliatæ, tam radice quam habitu. Discrepantia notissima in stipulis foliaceis, et foliis inferis est. Caules plures, supra ramosi; colore fulvi aut rubicundi. Foliis ternatis; foliolis versus apicem lanceolatis, profunde inciso-serratis, plerumque, æqualibus; infra pinnatifidis, et tripartitis, colore fulvis. Stipulæ magnæ foliaceæ, ovatæ, acuminatæ, profunde serratæ, basi inæquales. Serraturæ stipularum ramorum, irregulariter incisæ. Serraturæ stipularum caulium, magis regulares. Floribus minores quam in Gillenia trifoliata. Pedunculis sub-setaciformibus longis Calix simpliciter campanulatus, basi abrupte terminatus in quinque segmentibus divisus. Stamina et pistillum ac in G. trifoliata. Habitat in calcareis montibus Ohioensibus, et hinc ad Floridam usque; floret Junio. B.

I AM indebted to Mr. Nuttall for the pleasure I experience in presenting the medical world, with a figure of this interesting plant. The drawing has been made with much care. from fine specimens

received from him, which he collected in the vicinity of Cincinnati in Ohio. To botanists I trust the figure will be acceptable, since this second well characterised species, fully establishes the validity of Moenich's genus, Gillenia, and will justify me in restoring it. Neither Michaux nor Muhlenberg has noticed the plant; it was first described by Willdenow, whom Pursh has quoted. The late Professor Barton observes in his "Collections," speaking of the Spiræa trifoliata, "it is said that there grows in the state of Kentucky another species, which is still more valuable, as an emetic, than the S. trifoliata."* The plant here figured, is, without doubt, the one alluded to by Dr. Barton. That this is the fact, sufficiently appears from the account Mr. Nuttall gives of it; and also from a rude sketch evidently of the *stipulacea*, now in my possession, made with a pen, by the late Rev. Dr. J. P. Campbell of Lexington, Kentucky, who has added the English name, Indian-physic, and called the plant spiræa trifoliata. There is no doubt that the two species have been heretofore generally confounded under the specific appellation *trifoliata*, by the American botanists, and indiscriminately used by physicians in the country; though it would seem by Dr. Barton's remark, that the circumstance of another species existing in the Western States, had been communicated to him, with the assurance that this was the more valuable. Their strong resemblance to each other, may readily account for the indiscriminate use of both, under one common name.

* Vol. 2. p. 39.

Gillenia stipulacea has a root, according to Dr. Campbell's sketch, corroborated by Mr. Nuttall's description of it, precisely similar to the root of G. trifoliata represented in table 5, fig. 2; and what has been said of the root of that plant in the preceding article, may be applied to this one. It is of course perennial. Mr. Nuttall informs me that the whole plant is much taller, and more bushy than G. trifoliata; and sends up a vast number of stems from each root. The stems are brownish, branched at the top, and bear the flowers on long slender peduncles, in the form of a lax corymbose panicle. The upper leaves of the stems, and those of the branches, are ternate, lanceolate, cut-serrate, and nearly equal. Those approaching the bottom are deeply incised, and the segments cut-serrate; the lowest leaves are pinnatifid, and of a reddish-brown colour. The stipules resemble leaves; are ovate, acuminate, deeply serrate, and unequal at the base. The serratures of the stipules of the branches, are more deeply, and more irregularly cut than those of the cauline stipules. The flowers are smaller than those of G. trifoliata, and the calix is simply campanulate, being abruptly terminated at its union with the peduncle, and not inflated in the middle, nor attenuated at its base, like the calix of G. trifoliata.

The following account of the geographical range of this species of Indian-physic, I quote from a memorandum given me by Mr. Nuttall:

"Gillenia stipulacea begins to appear south-westward on the high gravelly banks of the Ohio, soon after passing the confluence of the Muskingum. Here we no more meet with the G. trifoliata of the mountains and the eastern states, which it so much resembles, as to be almost uniformly confounded with it by most of the western botanists; continuing along the whole course of the Ohio we also find it, occupying the soils and situations of G. trifoliata throughout the Illinois, Indiana, and Louisiana, where I first became acquainted with it, in the neighbourhood of St. Louis. It does not, however, continue far up the Missouri. Its medicinal properties are, it may be presumed, very similar to those of the G. trifoliata; and it is probably the only species made use of by the western physicians."

The G. stipulacea, according to the remarks on the sketch made by Dr Campbell, is found in "Virginia, most abundantly in the woods west-south-west of Parkersburg. Fifteen miles west of Marietta, on the Athens road, it commences, and abounds in company with a great abundance of Columbo;" (I presume, Frasera verticillata,) "also at Bellville."

G. stipulacea flowers in June.

The variety marked β. *incisa* by Pursh, and which he describes "foliis ternatis, foliolis pinnatifidis inciso-dentatis," I strongly suspect to be nothing more than the lower portions of our plant; and

I venture this opinion, from an accurate examination of the specimens from which I made the figure. No. 2, the lower portion of the plant, evidently fits the above description of the supposed variety. In all probability, the tendency of the leaves to become pinnatifid, occasionally extends further: and I should not doubt, that when there exists such amorphous shapes in the foliage, the whole plant would sometimes partake of the character of the lower leaves represented in the plate.

There is but little doubt that this plant is sufficiently hardy to endure transplanting; and it might readily be propagated, I should suppose, by a separation of the roots. It will be of some consequence, however, in cultivating it, to bear in mind its natural soil, as noticed in the preceding page. Both this, and the other species of Gillenia, are important medicinal plants; and as one or the other is found in almost every state in the union, physicians and apothecaries in the country, would find it to their advantage to collect it for use, as well as for sale in the shops.

MEDICAL PROPERTIES.

What has been said by Schoepf, Barton, and others who have quoted them, concerning the virtues and doses of Spiræa trifoliata, is applicable to the G. stipulacea, for reasons above given. The bark of the root is used; and the roots should be collected in September.

after the tops have died. The dose is the same as that of G. trifoliata; though perhaps a smaller quantity would answer.

TABLE VI.

Fig. 1. Represents the upper portion of Gillenia stipulacea.

2. The lower portion.

3. The calix.

4. The same opened, showing the stamens.

5. A petal, with a view to show its shape.

6. The pistil, showing the five styles.

Fig. 1.

Fig. 2.

Drawn from Nature by W.P.C.Barton

MAGNOLIA GLAUCA.

(Small Magnolia)

MAGNOLIA GLAUCA.

SMALL MAGNOLIA.

White-bay. Swamp-Sassafras. Beaver-tree. Castor-wood. Beaver-wood. Sweet-flowering Bay. Sweet-Magnolia. Sweet-bay. Elk-bark. Indian-bark. White Laurel. Gach-hach-gik, of the Delaware Indians.

Dutch. Die eisengraue Magnolie; Die meergrüne Magnolie; Der Biberbaum.

French. Le Magnolia glauque; Le Magnolier bleu; Le Magnolier des marais; L'arbre de Castor.

Japan. Kobus, Kobusi, Kobuks, Konsusi, Mitsmata, side kobasi, sini. *Variet.* Mockkwuren; Fo no ki.

German. Graue Magnolia. (Willd.)

Ein 15 bis 20 Fuss hoher Strauch, in Virginien, Carolina, und andern Nördlichen theilen von America; wachst auf feuchtem Boden, und an den Bächen; der geruch der Blumen ist angenehm, aber so stark, das er sich auf ain viertel einer deutschen Meile erstrecken, und in der nähe Kopfweh erregen soll; die Amerikaner legen den samen in rum, um ein magenstärkendes getränk davon zu erhalten; die Rinde ist eine vorzügliche naprung für die Biber, auch können selbige am leightenten damit gefangen werden.

Magnolia glauca, L. Sp. Pl. 755. Mill. Dict. n. 1. Du Roi Harbk. 1. p. 399. Wangenh. Amer. 60. t. 19. f. 46. Willd. Arb. 189. *α.* latifolia. Hort. Kew. 2. p. 251. ed. 2. vol. 3. p. 329. Hort. Cliff. 222. Gron. Virg. 61. Kalm. it. 2. p. 324. Dill. elth. 207. t. 168. f. 205. Catesby, Car. 1. p. 39. t. 39. Trew. ehr. t. 9. Pluk. alm. 379. t. 68. f. 4. Raj. Hist. 1690, et 1798. n. 4. *β.* longifolia, Ait. l. c. Lin. Pfl. Syst. 2. p. 77. Shœpf. Mat. Med. Am. p. 91. Muhl. Cat. Pl. Am. Sep. p. 53. Willd. Sp. Pl. p. 1256. Mich. Fl. Boreali-Am. vol. 1. p. 327. Pursh, Fl. Am. Sep. vol. 2. p. 381. Mich. fil. Hist. des Arbres Forest. vol. 3. p. 77. Barton's Collections, &c. part 1. p. 13, 47. part 2 p. 20. Barton's Prodr. Fl. Ph. p. 59. Nuttall, Gen. Am. Plants.

MAGNOLIA.

Gen. Plant. 942.

Magnolia, L. *Cal.* 3-phyllus. *Cor.* 9-petala. *Caps.* glomeratæ, 2-valves. *Sem.* pendula.

Nat. Syst. Juss. *Magnoliæ.* Classis XIII, Ordo XV.

Magnolia, L.* *Magnolier.* Calix 3-phyllus corollæformis deciduus, bractea cinctus membranacea hinc fissa et fugaciore. Petala 9. Antheræ numerosæ longæ, filamentis utrinque adnatæ. Germina numerosa axi centrali clavato imposita; totidem styli brevissimi et stigmata villosa. Capsulæ totidem in strobilum dense compactæ persistentes compressæ acutæ 2-valves 1-loculares 1-spermæ; semina ossea, baccata seu arillata, ex dehiscente capsula filo pendentia. *Arbores; folia magna; flores axillares maximi odori* Juss. Gen. Pl. p. 281. ed. 1789.

Cal. Perianth inferior, of three ovate, equal, concave, petal-like, deciduous leaves. *Cor.* of six, nine, or more oblong, concave, obtuse, petals, narrower at the base. *Stam.* Filaments numerous, short, incurved, pointed, compressed, and two-edged, inserted into the common receptacle of the pistils below the germens; anthers terminal, linear, of two cells, bursting longitudinally at the inner side. *Pist.* Germens numerous, ovate-oblong, imbricated upon a cylindrical or ovate receptacle; styles recurved, very short; stigmas longitudinal, downy. *Peric.* Capsules numerous, sessile, crowded, coriaceous, compressed, wedge-shaped, of one cell and two valves bursting outwards, permanent. *Seeds* one or two in each cell, roundish-oblong, pulpy, coloured, at length hanging by a thread-like stalk, out of the capsule. Ess. cha. Calix of three leaves. Petals six to twelve. Anthers bursting inwardly. Capsules of two valves, crowded into the form of a cone. Seeds pulpy, pendulous. Ency.

Nat. Ord. Lin. *Coadunatæ.*

Classis *Polyandria.* Ord. *Polygynia*, Lin. Syst.

Magnolia glauca. Foliis ellipticis, obtusis, subtus glaucis petalis obovatis basi attenuatis. Willd. Sp. Pl. 2. p. 1256.

α. *latifolia* foliis deciduis ovali-oblongis obtusiusculis. Ait. Kew. 2. p. 251.

β. *longifolia* foliis perennatibus ellipticis utrinque acutis. Ait. l. c.

In swamps covered with wood: New Jersey to Carolina. β. Georgia and Florida ♄ May—July. Pursh.

SYNONYMA.

MAGNOLIA, foliis ovato-lanceolatis. Hort. Cliff. Gron. Virg. Kalm it.

M. laurifolia subtus albicante. Dill. elth. Catesb. Car. Trew. er.

Tulipifera Virginiana, laurinis foliis aversa parte rore cœruleo tinctis, com-baccifera. Pluk. Alm.

Laurus tulipifera, baccis calyculatis. Raj. Hist.

Habitat in Nova Cæsarea, Virginia, Pennsylvania, Carolina et Georgia. Florens Maio et Junio

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Pharm. Magnoliæ glaucæ Cortex, Semina, Carbones.

Qual. Amaro-aromatica.

Vis. Subadstringens, tonica, antifebrilis. Sem. Stomachica, pectoralis.

Usus: Decoct. Cort. Diarrhoea, Tussis, Phthisis, Febres, Hæmorrhois, Aestus febrilis, Dolores interni;—Decoct. ramor. junior. Catarrhus, Coryza. Semina: Tussis et alii morbi pectoris Carbonum Unguent. Cum Axungia porcin. Ulcera.

Comp. Sem. infusum spirituosum. (Shœpf. Mat. Med.)

DESCRIPTIO UBERIOR.

Arbor parva, rariter ultra 30 pedales. Ramis fastigiato-divaricatis. Folia magna, ovalia, subtus glaucis seu albido-cœrulescentia. Flores magnes, terminales, maximi odori; petalis obovatis, basi attenuatis: Antheræ numerosæ longæ. Capsulæ persistentes acutæ 2-valves, 1-loculares, 1-spermæ. Semina pendentia ex capsula filo. Habitat in uliginosis et umbrosis locis, florens Maio et Junio. B.

MOST persons are well acquainted with the fragrant flowers of the Little Magnolia; and notwithstanding the many fine trees of this superb genus, the present species is by far the most general favourite. The generic name was given by Plumier, in honour of Peter Magnol, Botanical Professor at Montpelier.

The Magnolia glauca,* though in general only a small tree, sometimes attains the height of forty feet; and a diameter of twelve or fourteen inches. It is in the southern states, particularly the Carolinas, that it reaches this, its greatest elevation. Its most common height is from twenty to thirty feet, and in the vicinage of Philadelphia, on the Jersey side of the Delaware, it is a much lower tree, frequently flowering luxuriantly, when it has reached a height of five or six feet. Michaux, f. says that this is also the case in the environs of New York. I have no where seen it producing mature flowers at so humble a stature, as it does near Christiana, or as it is vulgarly called, Christine, on the road from Philadelphia to Baltimore; where I have observed clusters of this Magnolia in full flower, the largest individual among which, did not exceed four feet in height, and all of them much more deserving the appellation of bushes or shrubs than trees. The variation in the height of this species, is much influenced by local exposure and peculiarity of soil. I have seen trees of the greatest discrepancy in stature, but precisely alike in respect to the size of the leaves, flowers, and fruit, occupying almost the same ground. The difference in these instances, appeared merely owing to accidental situation; the small ones occupying the shady thickets, and the taller trees, the skirts of woods.

The trunk is covered with a smooth grayish bark; is tortuous, and much divided into divaricating branches. The wood is whitish.

* This species appears to have been the first of its genus introduced into the gardens of England, having been cultivated by Bishop Compton, at Fulham, in 1688.

and very light. It is not, so far as I know, employed for any useful purpose. It is known sometimes by the name of castor-wood, or beaver-tree, which indicates that the beaver makes use of it in some way. In all probability it is employed by those sagacious animals. for posts in the construction of their dikes, on account of its levity, which enables them to carry it to convenient places; and from its softness, they can fell it without difficulty. The bark serves them for food during the winter, in times of scarcity, or the prevalence of severe weather or high floods, either of which confines them to their habitations.

The leaves of this tree are five or six inches long, and alternately disposed on the branches. They are of a long oval form. entire, thick, opaque, of a deep yellowish-green colour on their upper surface, and glaucous or bluish-white underneath. This agreeable green, relieved by the frequent presentation of the blue under side, exhibits a pleasing contrast in the leaves. Though at all times the foliage of this tree is comely, it appears to much more advantage during the inflorescence, from the harmony of colouring produced by the handsome cream-coloured flowers. The leaves fall in the Autumn of every year, and are reproduced in the Spring, at which season they are of a much lighter tone of colour than when further advanced.

The flowers are terminal, and solitary; and about the size and shape of half a goose's egg. They are composed of many oval, con-

cave cream-coloured petals; and exhale a subtile, bland, and to most persons, delicious odour. This renders them so universally agreeble, that at the period of their maturity, the women and children in the neighbourhood of Philadelphia and New York, resort in great numbers to the swamps where they grow, and cull them to vend in the markets. The flowering twigs are put up in bunches, and sold for a cent or two cents each, and are eagerly purchased to decorate the mantels and chimney-places, in the houses of all ranks of people. The market-places are perfumed at this season, with the spicy scent, for which these flowers are so remarkable. They are familiarly known in our market, by the name of Magnolia, and rarely by the appellation of Small Magnolia. The emanation from the flowers is extremely penetrating. To some persons it is rather unpleasant, and to a few, insupportable; producing uneasiness in the chest, and a tendency to fainting. The late Dr. Barton imputed to this odour, the power of increasing the pain of inflammatory gout, and occasioning an exacerbation of a diurnal fever. I cannot help suspecting this opinion to have been much influenced by the imagination, though I by no means deny these sweet flowers a considerable degree of activity; and perhaps in a close room they might produce slight headache in delicate persons, or even occasion fainting where idiosincrasy exists in the constitution. I really believe, however, that these flowers are frequently accused of effects which they have had no share in producing: and the almost universal estimation in which they are held, sufficiently proves their general innocence.

The flowers are succeeded by little fleshy squamous cones, about an inch in length, and three-quarters of an inch in diameter. They are of a green colour, with occasionally a tinge of red, as represented in the plate. Each cone is composed of numerous cells, of about twelve or eighteen lines in length. They contain the seeds, which are of a bright scarlet colour. They force their way, when matured, by rupturing, longitudinally, the sides of their chambers, and thus escape. Previously to falling, they are suspended for some days, by a delicate white filamentous thread, which allows them to hang just below the base of the cone; and by their beautiful contrast with the green scally strobile, produce a very pleasing effect. The seeds are about the size of a grain of Guinea-corn, irregularly roundish, and somewhat narrowed above.

There are two varieties of this tree. One called the broad-leaved Magnolia, with deciduous oval-oblong, and somewhat obtuse leaves; the other denominated the long-leaved Magnolia, having persistent, elliptical, long and narrow leaves, acute at the apex and base. This last is a taller tree than the first variety, and the branches are more upright. Pursh says it is this variety which is known by the names of Swamp-Sassafras, Sweet-Bay, Swamp-Laurel, and Beaver-wood. It is the broad-leaved variety which is indigenous in our vicinity. The other is more common to the south. I have heard the Magnolias in the vicinity of this city discriminated by the two appellations of Upland Magnolia, and Lowland Magnolia; and it is currently believed, that the variety designated by the latter

epithet, will not bear transplanting into our gardens. I suspect the fancied difference is nothing more than one existing perhaps in the constitution, (if I may be allowed such an expression,) of the individual trees, arising from accidental situation in a dry or moist soil. Those found thriving in a comparatively dry spot, will in all probability stand the best chance of living after transplantation. The fact is, however, that this species of Magnolia, is shy of cultivation; and the frequent failure of attempts to cultivate it, while at the same time some individuals are occasionally found to thrive, induces people to seek for the cause, in a difference of species, or in a variety.

The northernmost range of the Small Magnolia, is Cape Anne, in the State of Massachusetts, in latitude 45° 50′.* It is pretty frequent in the lower part of New Jersey, but more abundant further south. According to Michaux, f. this tree is the most common inhabitant of all the lower maritime parts of the middle states, as well as of Florida and the lower portion of Louisiana. It is never met with at any considerable distance in the interior; and it is not seen in the states of New York, Pennsylvania, and Maryland, more than thirty or forty miles beyond the cities of New York, Philadelphia, and Baltimore.† In the Carolinas and Georgia, its range is restricted to the geographical limits of the pines, as indicated by Michaux, who remarks, that he never remembers to have seen it in

* Michaux, Arbres Forest. † Idem.

the upper parts of these states, nor in those situated to the east of the mountains. In the lower portions of New Jersey, and Pennsylvania, and more to the south, the Magnolia glauca is never seen except near marshes, bogs, and sphagnous swamps, which are for the greater portion of the year so full of water as to be impassable. Its common companions in these places are, Vaccinium frondosum and Vaccinium amœnum, or swamp whortleberry bushes; different species of Andromeda or bilberry, as A. caliculata, A. Mariana and A. paniculata; Cupressus thyoides, or white cedar, and Vaccinium occycoccos, or American cranberry. The swamps containing this last plant, will seldom be found destitute of the small Magnolia. In the great morasses bordering the rivers of the Carolinas and Georgia, this tree is seldom met with; while on the other hand, in those extensive marshes which reach in all directions across the pine forests, it constitutes, with the Laurus Caroliniensis, or red-bay, and the Gordonia laysianthus, or loblolly-bay, the body of trees which fills these swamps. The miry black soil of these places, which is superincumbent to a stratum of sand, is peculiarly suited to the growth of this tree.

In the cities and neighbourhood of Philadelphia and New York, the Magnolia glauca is best known, as has already been hinted, by the names of Magnolia and Small Magnolia. It was formerly recognised by the appellations of swamp-sassafras, and beaver-wood, or beaver-tree; the latter of which was introduced by the Swedish

emigrants who first settled in this country. These names are now disused, and very properly. That of swamp-sassafras is not only incorrect and inappropriate, but leads to confusion. As it is the smallest tree of its genus, it seems to me, the best and most discriminating appellation by which we can designate it, is Small Magnolia. It may not be amiss to notice, that the name of elk-bark arises from the circumstance of its being eaten by the Cervus Wapiti. (of Barton,) or American elk. The name of Indian bark, which is very rarely applied to this tree, arises in all probability from the use the Indians make of it in medicine.

MEDICAL PROPERTIES.

The Magnolia glauca belongs to the class of tonic bitters, and is far from being an unimportant article of this useful set of medicines. The bark of the roots of this tree have an aromatic odour and a bitter taste; and a decoction is said to have been very useful in rheumatic affections.* It is sometimes infused in brandy, by the peasantry, and they use the tincture in rheumatic affections. It is considered by them as a light sudorific. The inhabitants of the lower part of Jersey, are accustomed also to infuse the cones and the fruit, in rum and whiskey. The liquor of this infusion imbibes a very bitter taste, and is considered as a good prophylactic against

*Barton's Collections. Shœpf's Mat. Med.

autumnal fevers. The bark of the tree and branches, forms, by pulverization, an agreeable aromatic tonic-bitter medicine, which has been used in intermittents. It is celebrated among the western Indians, as a remedy for rheumatism and fevers, and they resort to the river Kanhaway, where this Magnolia grows in great abundance, for the purpose of collecting vast quantities of the bark for these uses.* A decoction proves gently cathartic, and terminates its operation by acting as a sudorific. A cold infusion and tincture of the bark, are much used in intermittents. Dr. Barton mentions, that in a case of inflammatory rheumatism it seemed to produce considerable relief, by its sudorific effect, after blood-letting. Shœpf says a decoction of the bark is useful in "diarrhoea, cough, phthisis, fever, hæmorrhois, autumnal fevers, and internal pains; that a decoction of the young branches is effectually employed in catarrh and coryza; the seeds in cough and other affections of the breast; and finally, an ointment made of the carbonized wood and hog's-lard, is good for ulcers."† It will readily be perceived, from this detail of the virtues of our plant, that Shœpf was in some measure favourably biased by the prevalent high estimation in which this species of Magnolia was held; and he doubtless imputes more medical power to it, than the truth will justify. Yet if his encomiastic account shows on one hand, that he is too lavish of his commendation of its medical virtues, it proves on the other, that as an article of domestic medi-

* Barton's Collections. † Mat. Med. Am. p. 91.

cine, it is very variously and very generally employed. This I have also other reasons to believe to be the case. Its almost universal use among the country people who dwell where it grows, as a remedy for autumnal fevers, and other affections, as already mentioned, evinces the probability that it is frequently found efficacious. Therefore it is, that I have assigned it a place in this work, and invite the attention of practitioners to the subject. The dose is about one drachm of the powdered root; and this quantity may be repeated three or four times in a day. The decoction or infusion, may be taken to any extent that the stomach will bear. The extracts may prove useful in medicine. That produced from the tincture of the bark of the twigs, is soft, dark-coloured, bitter, and gum-resinous. The tincture of the roots yields a soft, dark-coloured, resinous extract, of a bitter, pungent, and resinous taste. A decoction of the bark of the trunk, affords a hard, black, friable, gummy, resinous extract.

ŒCONOMICAL USE.

Like most vegetables endued with aromatic bitter properties, the Small Magnolia is employed in the preparation of morning bitters. The practice of taking what is called a morning dram is too common among the labouring peasantry of our states; and among the different articles they use for this purpose, no one is

more likely to act healthfully than this. The cones and seeds are sometimes used; but the seeds alone form the most elegant and pleasant bitter. They should be infused in good old spirit, or old rye-whiskey, and digested in the sun for a day or two. It is said that the root is used as a bait to catch the beaver, that animal being fond of it as food. The wood burns indifferently, and of course is never felled for this purpose. The tree may be propagated by seeds; and it is said, I know not with what foundation, that those sent from this country to Europe, will not vegetate without being passed through the alimentary canal of the turkey.

TABLE VII.

Fig. 1. Represents a flowering twig of the Magnolia glauca, of its natural size.

2. The cone, showing two seeds which have escaped from their cells, and are suspended in the common way, previously to dropping.

Fig.1.

Fig.3.

Fig.2.

Drawn from Nature by W.P.C. Barton.

Tanner, Vallance, Kearny & Co. sc.

LIRIODENDRON TULIPIFERA.

(Tulip - tree.)

LIRIODENDRON TULIPIFERA.

TULIP-TREE. POPLAR.

Poplar-tree; White Poplar; Yellow Poplar; White-wood; American Poplar. American Tulip-tree Tulip-bearing Poplar. The Old-wife's shirt. Sometimes in New England, *Cypress-tree*. Lyre tree of America. Len-nik-bi, of the Delaware, and Tse-u, or Tze-u,* of the Cheerake Indians.

Deutch. Der Tulpinbaum.

Holl. Tulpboom.

Swed. Kanœträd; Knuträd. Knutræ. *Kalm.*

French. Le Tulipier; L'arbre aux tulipes. Bois jaune.

Portug. Tulipeiro.

German. Virginisher Tulpenbaum. (Willd.)

Ein prächtiger baum, mit schönen tulpenartigen blumen, und schoenem laube; in Nordamerika; wird auch seit langer zeit in Europäischen gärten gezogen; das holtz wird in Amerika zu allerley Schreinerarbeiten benutzt, wiewohl es den fehler hat, dass es sich bey trocknem wetter stark zusammenzieht, und bey seuchtem wetter wieder stark ausdehnt, und in fällen leicht ritzen bekommt; die wilden höhlen die stämme aus, und brauchen selbige zu ihren Kanoes.

Liriodendron tulipifera. L. Sp. Plant. 755. Amoen. academ. 4. p. 517. Cold. Noveb. 130. Hort. Cliff 223. Hort. Ups. 154. Gron. Virg. 60. ed. n. 83. Roy. Lugdb. 494. Kalm. it. 2. p. 322. Trew ehr. t. 10. Buttr. cun. 229. Du Roi. harbk. 1. p. 374. Wangenh. Amer. 32. t. 13. f. 32. Willd.

* *Tseu* is the Chinese name for Musa Paradisiaca, or Plantain tree. This is one of the coincidences in language, which is worthy the attention of the natural historian of America. There are many vestiges of the languages of the Chinese and Tartars, among the tribes of North American Indians. See Barton's "New Views," and Rogers's Inaug. Diss.

arb. 173. Willd. Sp. Plant. p. 1254. Mill. Dict. Herm. Lugdb. 612. t. 613. Pluk. Alm. 379. t. 117. f. 15. et t. 248. f. 7. Catesb. Car. 1. p. 48. t. 48. Raj. Hist. 1798. Du Ham. arb. tom. 2. t. 102. Pluk. Alm. 379. t. 68. f. 3. Houttuyn. Lin. Pfl. Syst. 2. p. 70. Bot. Mag. 275. Schmidt arb. 1. p. 48. Mich. Fl. Boreal. Am. vol. 1. p. 326. Mich. f. Arbres Forest. vol. 3. p. 202. Pursh, Flor. Am. Sep. vol. 2. p. 382. Muhl. Cat. Plant. Am. Sep. p. 53. Barton's Collections, &c. part 1, p. 14, 47. Coxe's Disp. ed. 3d. p. 400. Thatcher's Disp. ed. 2. p. 257. Shœpf. Mat. Med. Am. p. 90. Art. Hort. Kew. ed. 2d vol. 3. p. 329. Barton's Prodr. Fl. Ph. p. 59. Nuttall, Gen. Am. Plants.

LIRIODENDRON.

Gen. Plant. ed. Schreb. n. 941.

Cal. 3-phyllus. *Pet.* 9. *Samaræ* imbricatæ in strobilum. *Caps.* 1-2-spermæ, non dehiscentes

Nat. Syst. Juss. *Magnoliæ.* Classis XIII. Ordo XV.

LIRIODENDRON, L.* *Tulipier.* Calix 3-phyllus corollæformis deciduus, bractea 2-phylla decidua cinctus Petala 6 in campanam conniventia. Antheræ numerosæ longæ, filamentis utrinque adnatæ. Germina numerosa, in conum digesta; stigmata totidem globosa, stylis nullis. Capsulæ totidem, basi tumidæ 1-2-spermæ non dehiscentes, apice in squamam planam lanceolatam attenuatæ, supra axim subulatum dense imbricatæ deciduæ. *Arbores; folia magna, in L. Tulipifera 3-loba, lobo medio truncato; stipulæ latiores, tardius deciduæ; flores solitarii terminales, tulipæformes.*

Juss. Gen. Plant. p. 281. ed. 1789.

Cal. Perianth inferior, of three oblong, obtuse, concave, spreading, equal, petal-like, deciduous leaves. *Cor.* Bell-shaped, regular, of six oblong, obtuse, equal petals, concave at the base. *Stam.* Filaments numerous, inserted into a conical receptacle, shorter than the corolla, linear, erect, of two cells, bursting longitudinally at the outer side. *Pist.* Germens numerous, disposed in the form of a cone; styles none; stigmas all crowded together, obtuse. *Peric.* Cases numerous, imbricated in the form of a cone; lanceolate, compressed, leaf-like, triangular and tumid at the base, each of one cell, not bursting. *Seeds* two, ovate. Ess. Cha. Calix of three leaves. Petals six. Anthers bursting outwardly. Seed-cases lanceolate, imbricated in the form of a cone.

Nat. Ord. Lin. *Coadunatæ.*

Classis *Polyandria.* Ordo *Polygynia.* Lin. Syst.

Liriodendron tulipifera, foliis trilobis, lobo medio truncato. Mich. f.

L. tulipifera, foliis abscisso-truncatis 4-lobatis, calice triphyllo. Willd. Sp. Pl. 2 p. 1254.

α. acutiloba, **lobis acutis acuminatisque. Mich. fl. Amer. 1. p. 326.**

β. obtusiloba, **lobis, rotundato obtusisimis. Mich. l. c.**

Habitat, α. a Canada ad Virginiam et a Carolina ad Floridam.

β. **in Pennsylvania. Mich. Fl. Am.**

α. Fertile grounds, Canada to Florida. Pursh.

β. in Pennsylvania. Pursh.

SYNONYMA.

Tulipifera Liriodendron. Mill. Dict.

Tulipifera arbor Virginiana. Herm. Lugdb.

Tulipifera Virginiana, tripartito aceris folio: media lacinia velut abscissa. Pluk. &c.

β. Tulipifera Caroliniana, foliis productioribus magis angulosis. Pluk. Alm.

Arbor Tulipifera Virginiana. Raj. Catesb. et Clayton.

Pharm, ***Liriodendri*** **Radix, Cortex, Semina.**

Qual. Rad. flavescens, acriuscula, fragilis.

Vis. Rad. febrifuga; Cort. anthelmintica; Sem. aperientia.

Usus: Cort. radicis spiritu vini infusus · Febres intermittentes, Rheumatismus, Arthritis.

Folia contusa indigenæ fronti Cephalalgiæ medendi causa imponunt—Unguentum e gemmis ad Inflammationem et Gangrænam. **Shœpf. Mat. Med.**

DESCRIPTIO UBERIOR.

Arbor exaltata magnifica, nonnunquam altitudine 100 pedales, et in circulo 30; plurimum vix ultra 70 seu 80 pedales proceritate. Ramis irregulariter contortis. Folia magna in lobis lateralis dissecta, basi velut cordata, et apice truncata. Petiola longitudine digiti. Flores numerosissimæ, magnæ, formosæ, sed odori omnino destitutæ. Calix duplex; sistens involucri proprii, et perianthemi. Involucrum foliolarum duarum: foliola triangulata et decidua. Perianthemum triphyllum, petaloi-

deum, oblongum, concavum et deciduum. Corolla 6-9 petala, campanulata; petalis oblongis, obtusis, spathulatis, flavo rubro, et viride variegatis. Staminæ numerosæ longæ; filamentis linearis, corolla brevibus; antheræ linearæ filamentis adnatæ. Pistilla numerosa quasi strobili dispositis; stylus nullus; stigma globosa. Seminis numerosis in squama lanceolata terminatis, et omnis in conum imbricatis. Habitat a Canada ad Louisianam usque, et ultra. Florens et Maio et Junio.

Barton's Fl. Phil. MS.

This magnificent tree* may be considered not only as the pride and ornament of the American forest, but as the most superb vegetable of the temperate zones. It is equally remarkable for its great height, its beautiful foliage, its superb flowers, and its handsome wood. The latter is used for an infinite variety of œconomical purposes.

The generic name is composed of two Greek words, λιριον, or λειριον, *a lily*, and δενδρον, *a tree*, from the resemblance of the flowers, to a lily or tulip.

In the Atlantic states, at some distance from the sea, the Tulip-tree not unfrequently attains the height of 70, 80, and 100 feet, and not uncommonly from 18 inches to three feet in diameter. According to Catesby, it sometimes measures 30 feet in circumference.

* This tree "was cultivated by Bishop Compton, at Fulham, in 1668, and is now not unfrequent in England, though seldom flowering till an advanced age. We have however known it blossom when about 16 years old. The first which produced blossoms in this country, is said to have been at the Earl of Peterborough's, at Parson's Green, Fulham. There were several, early celebrated for their size and beauty, at Waltham Abbey, one of which remained lately, and perhaps still flourishes." Ency

Michaux the elder, measured one tulip tree, which at five feet from the earth, was twenty-two feet six inches in circumference. and from 120 to 140 feet high. This account has since been corroborated by his son, to whose history of the poplar in his splendid work on our forest trees, I am much indebted in this article. It is, confessedly, the largest and thickest tree of North America with deciduous leaves, except the Platanus occidentalis, or Plane-tree. It rises with a straight or upright trunk, in general to the height of more than 40 feet. The branches are not very numerous. Those of one summer's growth are of a shining blue colour, and are pithy; those two seasons old, have a smooth brown bark. When broken, they emit a strong but rather agreeable odour. The bark of the young trees is tolerably smooth, but in old ones it is broken into deep furrows or fissures.

When the leaves have attained their full growth in the spring. they are generally from six to eight inches in length: frequently. however, only from four to five long, and as many broad. They are supported by footstalks of a finger's length. and are disposed alternately on the stems. They are a little fleshy, of a glossy dark yellowish-green, and singularly formed, being somewhat heart-shaped at their base, horizontally truncated at the top, and notched in the middle down to the middle rib. They are divided into three lobes, those of the sides being rounded off or pointed. This re-

markable shape of the leaves, to which there is no exact resemblance in any other vegetable, will always distinguish the tree from all others, at first sight. Their upper surface is of a darker colour than the lower, and smooth; underneath, the veins are prominent and conspicuous. The leaves fall early in autumn. The buds of the ensuing year's shoots begin soon after to dilate, and they increase so rapidly, that by the end of December they are an inch long and half an inch broad.

The young leaves are enfolded in elliptical, obtuse, deciduous stipules.

The flowers are singularly beautiful, being variegated with yellow, orange, and lake-green; and are fully expanded, in common seasons, about the 20th of May. They are exceedingly numerous on a single tree, and are supported by peduncles which grow from the extremities of the branches. Catesby compares them to the flowers of the Fritillaria imperialis, or crown imperial: but they have a more palpable resemblance to those of the tulip. This likeness, indeed, has given rise to the specific name. Though destitute of odour, their extreme beauty, together with the singular foliage, renders them, like the Small Magnolia, general favourites; and like them, they are brought in profusion to our markets, and vended in bunches at a cent or two cents each, for decorating our chimney-

hearths, &c. They are very generally purchased by all sorts of people, for this purpose.

The calix is two fold; consisting of a proper involucrum of two leaflets, which are triangular, plane and deciduous: and a triphyllous perianth. the leaves of which open and fall back as the flower expands; they are petal form, oblong. concave. and deciduous.

The corolla is bell-shaped, composed of six, seven. and sometimes more, oblong, obtuse, spathulated petals. spotted towards the top with green, and towards the claws with red, orange and yellow. They are open and variegated with different delicate tints. of which yellow predominates. Near the attachment of the petals to the receptacle, is the nectary, and the flowers secrete a vast quantity of honey. The bees are observed to resort to them in great numbers. It is calculated that the flowers of a single tree. may produce several gallons of excellent honey.

The stamens are numerous; the filaments are linear. shorter than the corolla, and inserted into the receptacle. The anthers are linear, and connected longitudinally, to the sides of the filaments.

The pistils are numerous; the germs are disposed in the form of a cone. destitute of a style, and the stigmas globose.

The fruit is formed of numerous, long, narrow, thin scales, attached to a common axis, and imbricated in the form of a cone, varying from two to three inches in length, and pointed at the summit. When the cones are well filled, each one is composed of sixty or seventy seeds, only one-third part of which are capable of vegetation, and in certain seasons, not more than seven or eight.*

It is observed also, that in the course of the first ten years after the tulip tree has begun to produce fruit, almost the whole of the seeds are infertile; and that the largest trees with the highest branches are the best and most prolific.

There are two varieties of this tree as mentioned by Pursh; one having leaves with acute lobes, and the other having the lobes obtuse. One of these varieties is figured by Plukenet, in his Phytographia, t. 68. f. 3, and it differs much from the common kind, having four slight lobes instead of two great ones at each side of the leaf. It is remarked that in the gardens in England, the leaves occasionally have divided side lobes. There are, however, differences in the colour and quality of the wood; but whether either variety in the leaves, is constantly accompanied by one of these different kinds of wood, I am not prepared to say. Perhaps not. If I were

* Mich. f. Arbres Forest.

disposed to venture an opinion on the subject, it would be, that the varieties in the leaves and in the colour and quality of the wood, are wholly independent of each other.

The Liriodendron tulipifera in many parts of the United States, and particularly where it is the most abundant, is known by the name of Poplar. In New York and New Jersey, it is called *White-wood* and *Canoe-wood*. It is known by another and more appropriate name, though not so generally received—that of Tulip-tree, from the resemblance of its flowers to the tulip, when less expanded than represented in the plate. By this name, Mr. Michaux informs us, the tree is recognised every where in Europe where it has been introduced; and it were much to be wished, that the common but faulty name of Poplar could be disused, for the current adoption of one founded on so manifest a resemblance. The tree has, moreover, no characters in common with the poplars; consequently this name is calculated to create confusion. The French inhabitants of Louisiana and Canada, give it the name of *Yellow-wood*. It is also recognised in some parts of Pennsylvania by this appellation.

It is said that the milk of cows which have eaten of the buds, acquires a bitter and disagreeable taste.

This tree is the favourite haunt of the Oriolus Baltimore, or Baltimore oriole. It is found, according to Catesby, in almost every part of the northern continent of America, from the cape of Florida to New England. To the northward of latitude 42 it is rather rare, and of inconsiderable stature. According to Michaux, f. the lower extremity and north of Lake Champlain, which corresponds to the 45th degree of north latitude on one part, and the river Connecticut, which runs parallel to the 72d of longitude, on the other, may be considered as the natural limits of the Tulip-tree in this direction; and he informs us that it is not frequently met with in the forests, neither does it acquire a very great height, before leaving the river Hudson, which runs nearly two degrees more to the east, and below the 43d of latitude. In Connecticut and Vermont the cold seems, in some degree, to check its growth. In the eastern states, in the upper parts of Carolina and Georgia, but particularly in Kentucky, this tree is most abundant. It is comparatively much more rare in the lower and maritime parts of the two Carolinas and of Georgia, as well as in the two Floridas and the lower part of Louisiana. It grows on fertile ground.*

* The following is the account given of the method of raising the Tulip-tree in England.—"Plants of this kind may be raised by sowing the seeds, imported annually from America by the seed-dealers, in spring, either in the full ground, in beds of rich light earth, in a warm situation, placing the seed lengthwise, and covering it nearly an inch deep: or in pots or boxes, plunging them in a gentle hot-bed. When the young plants appear, they should be well screened from the sun, and have free air.

It is generally found mixed with other trees, as the different species of Juglans, the common hickory-nut, black-walnut, and butter-nut trees; the Gymnocladus Canadensis, or Kentucky coffee-tree; the Cerasus Virginiana, or Virginian cherry-tree, &c. Yet sometimes it forms extensive woods by itself, as was observed by Michaux the elder, in travelling in Kentucky, on his route to Louisville.

They usually come up the same season; when in the former method, water should be given them in dry weather; and if the bed be covered over with hoops, to have occasional shade from the mid-day sun in scorching weather, it will be beneficial to the germination of the seeds and growth of the young plants: continuing the waterings with care occasionally during the summer; and in winter, sheltering them with mats in frosty weather to preserve their tops, which are sometimes a little tender the first year, and apt to suffer in this way.

"When the plants are two years old, they should be set out in spring in nursery rows, two feet distant, and a foot asunder in the rows; to remain a few years, till from three to six or eight feet high, when they may be planted where they are to remain.

"But they are raised best in the open ground, where the beds are prepared of good mellow, rich earth, blended with old rotten cow-dung, sifting over the seeds fine turf-mould, mixed with fine sea or pit-sand. And they succeed best afterwards in a light soil, not too dry. They should have their roots and branches as little pruned as possible.

"This is a plant that grows so large as to become a tree of the first magnitude in its native situation; and it is generally known by the title of Poplar; of late there have been great numbers raised from seeds in this country, so that they are become common in the nurseries, and there are many of the trees in different parts which annually produce flowers.

"At Allerton Hall, the seat of William Roscoe, Esq. there is a very large tree of this kind, which flowers well.

"These trees are highly ornamental in large plantations, among others of simlar growth; and have a fine effect when planted out singly in large openings, kept in short grass, in pleasure grounds, or other situations, when they flower in any full manner."

CHEMICAL ANALYSIS.

We are indebted to Dr. Rodgers, for the chemical analysis of the Tulip-tree, which he has given in his excellent Inaugural Dissertation on this tree.* He informs us, that the distilled water produced from the bark, though not altogether insipid, possessed, only faintly, the peculiar flavour of the bark; that it was somewhat acid in the fauces; and that its odour was exceedingly agreeable, being considerably impregnated with the grateful aroma of the vegetable. It neither precipitated iron from its solutions, nor affected in the slightest manner, the blue colour of vegetable substances. Upon the application of a higher degree of heat to this distilled water, the liquor which came over, had an acid and very astringent taste. It changed blue vegetable substances red, and precipitated iron black; consequently the result was, an essential oil, with aroma in great abundance; and an acrid astringent acid.

Two pints of the cold watery infusion of the bark, afforded by evaporation, three drachms of a dark-coloured gummi-resinous extract. During the early part of the evaporation, two scruples of pure fecula were deposited. On submitting three scruples of the extract

* Un. Penn. 1802.

to the action of alcohol, nearly one scruple was dissolved; and the solution was somewhat bitter. An infusion of a pound of the coarse bark in a gallon of rain water was made, and submitted to chemical operations, for the detail of which the reader is referred to Dr. Rogers's Dissertation. Two pints of this infusion afforded by evaporation, three drachms of a dark-coloured gummi-resinous extract. During the early part of the evaporation, three scruples of pure fecula were deposited. Upon subjecting three scruples of the extract to the action of alcohol, filtering, &c. the following result took place:

Fecula, about	4 parts in	20
Gum	10	
Gum mucous	5	$\frac{19}{20}$
Resin		$\frac{1}{20}$.

A pound of the coarse powder of the bark was next infused in half a gallon of boiling water. At the end of twelve hours, this infusion was decanted, and an equal quantity of boiling water again affused on the bark. This was repeated four times. The first infusion was bitter, aromatic, and astringent. The second less bitter and aromatic; its astringency scarcely to be detected. The third was not in the least astringent, nor did it possess any perceptible bitterness. In the last affusion, the bark gave out neither bitterness nor astringency. A portion of the last-mentioned liquor was evaporated. It deposited a little feculent saccharine matter, which was nearly insoluble in cold water, but readily diffusable in hot. Re-

dissolved, and tested by the oxalic acid, it afforded a white precipitate, denoting the existence of lime. The alcohol of galls detected in it the presence of iron, in a very small quantity. The several infusions were mixed and evaporated to the consistence of a firm extract, weighing three ounces and an half. Upon one ounce of this was poured six ounces of pure alcohol, which took up two drachms. A gum blended with fecula and sugar was left behind. The spirituous solution contained about eighteen grains of resin, and five scruples of gum mucous. The alcohol of galls detected iron, and the nitrate of silver, muriatic acid, in this solution. The gummy matter exhibited as it dried, a great number of small shining crystals. A solution of these crystals was divided into several portions, and treated as follows: The nitrate of silver was added to one; it produced a precipitate, which upon filtration proved to be the muriate of silver. To another portion the tincture of litmus was added, and the mixture became red. The precipitate of lime produced, in the third, a blue tint which soon became greenish. Upon adding the tincture of galls, no change of colour was perceivable.

Result. Gum about 11 parts, or scruples in 24,

Gum mucous 6

Resin nearly 1

Fecula nearly 6

Muriatic acid, perhaps in combination,

Iron,

Calcareous earth,

A muriatic or essential salt.

Five parts only of gum mucous, had been taken up from the extract by the alcohol. A strong mucilage was formed of the residue, to which a large proportion of spirit was added. This dissolved one part more of the gum mucous, leaving the other principles curdled at the bottom of the vessel. The alcoholic tincture of the bark yielded

Gum mucous	30 grains.
Resin	16
A muriatic or essential salt	3.

The bark yielded, after ignition, potash, iron, and calcareous earth. Four pounds of the bark infused in a gallon of boiling water, and exposed to fermentation, yielded upon analysis, spirit of wine, vinegar, and oil. A decoction of four pounds of the recent bark, afforded five ounces of a black, or dark brown extract.

Two quarts of the tincture of the recent bark were analysed, and the following result obtained:

Impure gum, 3 drachms 10 grains,
Gum mucous, 5 drachms nearly,
Pure resin, 2 drachms, 2 scruples,
A muriatic or essential salt in very small quantity.

The distilled water from the bark of the root, was found to be limpid, odorous, nearly insipid on the tongue, and somewhat acrid on the fauces. The colour of the infusion from which it had been

drawn off, was pale yellow. An extract obtained by evaporating two pints of the infusion of the bark of the root, weighed half an ounce. To this, four ounces of spirit of wine were added. One drachm was dissolved. The portion taken up by the spirit consisted of one part resin and nine parts gum mucous; the residuum was impure gum. The infusion made with boiling water, is a much stronger bitter, than that made with cold; but not so intensely bitter as the spirituous tincture. The hot infusion differs from the cold in colour; the latter is pale yellow; the former a dark orange, inclining to red. The same difference of colour exists in the cold and hot infusions of the bark of the root.

The following statement is quoted from a paper by the late Dr. Rush, in the Transactions of the College of physicians of Philadelphia:

"1. Two pounds of fresh root boiled in half a gallon of water, gives a strong bitter extract, equal in my opinion, to the extract of gentian.

"2. Four ounces fresh bark infused, cut into small pieces, in a quart of proof spirit, give a tincture simply bitter, and of a peculiarly mild nature.

"3. One ounce of the dried bark in a pint of water, for twenty-four hours. The infusion was bitter.

"4. In endeavouring to reduce the dried bark to powder, I found it broke into small fibres, so that little powder was obtained from it. Upon toasting it a little over a slow fire, it was pulverised without difficulty. The powder was strongly impregnated with a bitter taste."

MEDICAL PROPERTIES.

The Tulip-tree belongs, as has been noticed at the head of this article, to Jussieu's natural family of Magnoliæ; and with the magnolias, it is arranged under Linnæus's natural order, Coadunatæ. We may therefore expect to find a similarity in the medical virtues of the Tulip-tree and the different species of Magnolia, particularly the M. glauca. This is the case. The bark of the Tulip-tree is considerably stimulant; yet its properties do not entitle it to a place under the head of stimulants. It is more properly considered as a tonic, and for its roborant effects I notice it here. It sometimes acts as a sudorific, and hence its usefulness in chronic rheumatism. Its powerful diaphoretic effects are certainly produced by its stimulant power; and therefore it is absolutely inadmissible, as a medicine in acute rheumatism. Those who employ it in the country will do well to bear this in mind. Like most diaphoretic medicines, it acts occasionally as a diuretic; but though I think it necessary to mention this circumstance here, it is not intended to intimate

that the bark is at all useful for this virtue. Indeed it is to be regretted, that the secondary effects of medicines should have so much importance attached to them as frequently is the case. In dwelling upon these effects, writers are too apt to lose sight of the prominent virtues of the plants of which they treat. There is some slight degree of astringency also, united with a portion of bitterness and aroma. The bark of the root is simply tonic in its effects. It is a strong bitter, containing a small portion of a warm aromatic property, and an essential oil. It has long been employed by physicians in the United States as a tonic; and, united with the Cornus florida, or Dogwood, and the Prinos verticillatus, or winter-berry, it has been highly commended for the cure of intermittents. It has even been said to be equal to the Peruvian bark. The late Dr. Rush mentions his having prescribed a large quantity of the powder of the root, "with as much satisfaction as any of the common bitters of the shops."* It is said that this bitter has been found particularly beneficial in the last stage of dysentery.† The powdered root has been used combined with steel dust in disorders of the stomach, with success.‡ Dr. Barton mentions that the bark is used in gout and rheumatism. I have already said that it can only be safely administered in the chronic state of the last disease; and I confess myself sceptical of its curative power in the former. In a letter§ addressed

* Transactions of the College of Physicians of Philadelphia, 1793.

† Thatcher's Dispensatory, 2d ed. p. 529, and Coxe's Disp. 3d ed. p. 400. Also Shœpf's Mat. Med. and Barton's Collections.

‡ Ibid.

§ Carey's American Museum, vol. 12.

to Governor Clayton of Delaware, in 1792, by Dr. J. T. Young, then of Philadelphia, he says, "I have prescribed the poplar bark in a variety of cases of the intermittent fever; and can declare from experience, it is equally efficacious with the Peruvian bark, if properly administered. In the phthisis pulmonalis, attended with hectic fever, night sweats, and diarrhœa, when combined with laudanum, it has frequently abated these alarming and troublesome symptoms. I effectually cured a Mr. Kiser, fifty years of age, who was afflicted with a catarrh and dyspeptic symptoms for five years, which baffled the attempts of many physicians and the most celebrated remedies. by persevering in the use of the poplar bark for two weeks.

"I can assert from experience there is not in all the Materia Medica, a more certain, speedy, and effectual remedy in the hysteria, than the poplar bark, combined with a small quantity of laudanum. I have used no remedy in the cholera infantum, but the poplar, after cleansing the primæ viæ, for these two years. It appear to be an excellent vermifuge. I have never known it fail in a single case of worms which has come under my observation. I prescribed it to a child when convulsions had taken place. After taking a few doses, several hundreds of dead ascarides were discharged with the stools. The dose of the powder to an adult, is from a scruple to two drachms. It may likewise be used in tincture, infusion, or decoction; but its virtues are always greatest when given in substance."

In answer to the foregoing, the Governor replies: "During the late war, the Peruvian bark was very scarce and dear. I was at that time engaged in considerable practice, and was under the necessity of seeking a substitute for the Peruvian bark. I conceived that the Poplar had more aromatic and bitter than the Peruvian, and less astringency. To correct and amend those qualities, I added to it nearly an equal quantity of the bark of the root of Dogwood, (Cornus florida or Boxwood,) and half the quantity of the inside bark of the white oak tree. This remedy I prescribed for several years, in every case in which I conceived the Peruvian bark necessary or proper, with at least equal if not superior success. I used it in every species of intermittent, gangrenes, mortifications, and in short in every case of debility. It remains to determine whether the additions of those barks to the poplar increases its virtues or not; this can only be done by accurate experiments in practice."

Mr. Lawson, in his history of North Carolina, speaks of a disease allied to syphilis, which occasionally destroys the nose, as existing among the savages of that country; and he tells us that the "juice of the Tulip-tree is used as the proper remedy for this distemper."

The bark of the root of the Tulip-tree can be given in extract, dissolved in water, in infusion and in decoction; but its virtues are most decided when administered in substance. Should it act on the

bowels, or should the stomach be too weak to bear it in this form. a few drops of laudanum should be combined with it. The dose of the bark for an adult, is from a scruple to two drachms. In Virginia the country people infuse equal parts of the bark of the roots of the Tulip-tree, and that of the trunk and stems of the Cornus florida, or Dogwood, in brandy: they suffer the infusion to digest for eight days, and give the tincture in the dose of two wine glasses a day, in intermittents.

The proper time for collecting the bark of the Tulip-tree for medical purposes, is in the month of January or February.

ŒCONOMICAL USES.

If the Tulip-tree is particularly admired for its splendid appearance, and is useful as a medicine, it is not less interesting from the various œconomical purposes to which its wood is applied. Perhaps no native tree is more serviceable, or more extensively used. The tree belongs to the class of light woods. Notwithstanding its levity, however, it possesses some counterbalancing advantages, which render it an important species of lumber. The true wood is nearly of a lemon colour, and is surrounded with white sap. The yellow colour of the heart is more or less deep; having sometimes a greenish hue, and not unfrequently shaded with violet. It is not so light,

as the common species of poplar. Its grain is pretty fine and compact, admitting of an excellent polish, and easily worked. It is extremely durable, when well seasoned and deprived of the blea. I have heard of some uncommon instances of the durability of this wood. In altering lately in Lancaster, a log house, which had been built upwards of eighty years, the logs which were made of this poplar, being cut transversely, had all the appearance of new timber, although they had been exposed to the weather. It is said that the worms never attack this wood. In Virginia it is employed for the shafts of large mill-wheels; and it is said to be better suited to this purpose than any other kind of wood, because it withstands the perpetual moisture to which it is exposed in these situations. The great defect in the timber of this tree, is said to be, its liableness to be affected by the vicissitudes of the weather, when used in long beams out of doors. The easiness with which it is worked, particularly when quite dry, has caused it to be used in the construction of small cabinet-ware. It works freely in the lathe, and hence is much used for all kinds of turned utensils; such, for example, as bowls, trenchers, ladles, rolling-pins, and many other culinary vessels. The figured stamps on the butter brought to our markets, are made by carved blocks of this wood; it is also employed for dead-eyes, blocks, &c. and other articles in ship-chandlery. The trunks of the largest trees are often hollow, and are made into pettiaugers, and canoes of sufficient capacity to hold many people. From its being appropriated to the latter purpose,

it takes the name of canoe-wood. The Indians esteem it the fittest kind of lumber for these boats. It is also used for coach pannels.

The nature of the soil is believed to have some influence on the shade of yellow, and upon the quality of the wood of this tree. Indeed this is very commonly remarked by those who are in the habit of working the wood. They distinguish the two kinds by the names of white poplar and yellow poplar; and say there are external signs by which these varieties can be designated; indeed I have heard some workmen pretend to know, whether the wood was white or yellow, previously to examining it. Not being satisfied with the answers of these people, it rests as yet in my mind, very problematical, whether there are really any external discriminating characters. It is said, however, that in general, the Tulip-trees which grow on elevated and gravelly situations, have white wood. Whether the reverse is uniformly the case, in those that grow in low and moist grounds, I am not prepared to say. The negroes and white inhabitants of Virginia, give strong decoctions of the root of the tree to horses that are troubled with worms. This practice is said to be efficacious in removing them. And according to Dr. Barton, the Cheerakes and probably other Indians, administer an infusion of the bruised inner bark to these animals, when bitten by the crotalus horridus, or rattle-snake. The professor does not say with what effect this practice has been followed; and the fact is here mentioned only on his authority.

Michaux* informs us that some persons at Paris make a spirituous table liquor, possessing an agreeable taste and flavour, from the fresh bark and roots of the Tulip-tree, adding a sufficient quantity of sugar to render it palatable. Of the precise mode of making this beverage, he does not tell us; but it is presumable the materials are brewed, and afterwards rendered more agreeable by the addition of sugar.

TABLE VIII.

Fig 1. Is a drawing of a flowering twig of the Liriodendron Tulipifera, of the natural size, having also a flower bud, as often happens.

2. A seed separated from the imbricated cone.

3. A reduced outline of the obtuse-lobed leaf mentioned in page 98.

* Arbres Forest.

Fig. 1.

Fig. 8.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 2.

Fig. 3.

Fig. 4.

Drawn from Nature by W. P. C. Barton

Tanner, Vallance, Kearny & C.

CORNUS SERICEA.

(Swamp - dogwood.)

CORNUS SERICEA.

SWAMP DOGWOOD.

Red-Willow. Rose-Willow. New England Dogwood. Female Dogwood. Silky-leaved Dogwood. American Red-rod Cornel:—Blue-berried Dogwood; and Blue-berried Cornus, in England.

Cornus sericea, L. Sp. Plant. 1. p. 663. Gron. Virg. ed. n. 20. Cold. Novebor. 17. Shœpf. Mat. Med. Am. p. 14. L'Herit. Corn. n. 6. t. 2. Willd. Arb. 75. Syst. Veg. 134. Mant. 199. Mill. Dict. n. 5. Du Roi. Harbk. 1. p. 165. Wangenh. Amer. 90. Ehrh. Beitr. 4. p. 15. Pluk. Alm. 121. t. 169. f. 3. Lin. Pfl. Syst. 1. p. 242. Willd. Sp. Pl. p. 663. Bart. Fl. Virg. Gron. p. 46. Pursh. Fl. Am. Sep. vol. 1. p. 108. Mich. Fl. Boreali-Am. vol. 1. p. 92. Walker's Inaug. Diss. Thatcher's Am. Disp. 2d ed. p. 200. Coxe's Am. Disp. ed. 3d. p. 286. Pharm. Mass. Med. Soc. p. 13. Barton's Collections, part 1. p. 12. part 2. p. 17-20. ed. 3d. part 1. p. 12. part 2. p. 17. Ait. Hort. Kew. ed. 2d. vol. 1. p. 262. Ray's Letters, 171. Jungh. Plant. Ic. cent. 1. t. 23. Barton's Elements of Botany, part 3. p. 16. Lin. Mantis. 199. Syst. Veg. 134. Gmelin, Syst. Nat. 11. p. 257. Forster. Fl. Am. Sept. p. 6. Marshall. Arbust. p. 36. Bartram's Travels, p. 321. Barton's Fl. Phil. p. 26. Walter's Carol. p. 88. Clayton, No. 23. Cold. Noveb. 17. Elliot's Sketch, Fl. Car. et Georg. p. 207. Muhl. Cat. Am. Sep. p. 17. Pers. Syn. Plan. vol. 1. p. 143. Nuttall, Gen. Am. Plants, p. 98.

CORNUS.

(For generic character, see Cornus florida, p. 43, with this addition, "Corculum of the seed long, involved in a carneous perisperm."—Nuttall.)

Cornus sericea, ramis patulis: ramulis lanuginosis, foliis ovatis, acuminatis, subtus ferrugineo-pubescentibus, cymis depressis lanuginosis. ♄. Willd. Sp. Plant. 1. p. 663.

Cornus lanuginosa, patula: ramulis lanuginosis: foliis ovalibus acuminatis, plerisque basi subrotundata obtusis, subtus manifeste pubescentibus: cymis confertioribus, lanuginosis. Obs. folia inferiora interdum subcordata. ♄. Mich. Fl. Boreal. Am. vol. 1. p. 92.

SYNONYMA.

Cornus arborea, cymis nudis, foliis subtus sericeis. Syst. Veg. et Mantis.

C. Amomus, arborea, foliis ovatis petiolatis, floribus corymbosis terminalibus. Mill. Dict. Du Roi. Harbk. Wangenh. Am. et Shœpf. Mat. Med. Am.

C. fœmina, floribus candidissimis umbellatim dispositis, baccis coeruleo-viridibus, ossiculo duro compresso biloculari. Cold. Noveb. et Gron. Virg.

C. rubiginosa. Ehrh. Beitr.

C. Americana sylvestris domesticæ similis, bacca coerulei coloris elegantissima. Pluk. Alm.

C. sanguinea. Forster, Fl. Am. Sep. Marshall. Arbust. and Bartram's Travels.

C. sanguinea: arborea, cymis nudis, ramis rectis subrubris, drupis cœruleis. Walt. Car.

Pharm. *Corni Sericeae*, cortex.

Qual. Baccarum parenchyma viride amaro-adstringens.

Usus: folia Indigenæ Tabaco admiscent. Ligni us. mechan. Shœpf. Mat. Med.

DESCRIPTIO UBERIOR.

Frutex biorgyalis. Radix lignosa, ramosa, dilute grisea, odore quasi Glycyrrhizæ proximo: radiculis subfuscis. Caulis erectus, teres, ramosus, griseus. *Rami* oppositi, teretes, patuli, obscure purpurascentes. *Turiones* teretes, annulati, subimmaculati et atropurpurascentes, ut in *C. sanguineâ*, juniores plus minusve pubescentes. Folia opposita, petiolata, ovata s. ovato-lanceolata, acuminata, integra, nervosa, subvenosa: costa nervisque infra elevatis, supra exaratis; subtus villosa ferruginea inprimis ad nervos, nunc nudiuscula, patentia, plana, juniora lateribus subconniventia, 3 poll. long. 18. lin. lat. Petioli hinc teretes, inde unisulci, folio quater breviores, villosi, purpurascentes. Cymæ terminales, pedunculatæ, erectæ, depressæ, vix convexæ, tri-quadripartitæ flore solitario intermedio, villosæ, 2 pol. lat. Flores pedicellati, horizontales, albi disco primum albo post anthesin fusco, odori, 4-5 lin. lat. Calix, *Perianthium* superum, monophyllum, quadridentatum, villosum: *denticulis* linearibus, acutis, patentibus; persistens, vix. 2 lin. lat. Corolla. *Petala* 4, epigyna, linearia, acuta, patentia, mox revoluta, coronam germinis cingentia, calice majora. Stamina. *Fila-*

menta 4, epigyna, erecto-divergentia, corolla vix longiora, infra coronam germinis uti petala inserta. *Antheræ* oblongiusculæ, biloculares, incumbentes, peltatæ, luteæ. Pistillum. *Germen* inferum, globoso-urceolatum, villosum, coronatum *nectario* receptaculiformi, plano. *Stylus* filiformis, staminibus vix brevior. *Stigma* capitatum, pubescens. Pericarpium. *Drupa* bacciformis, globosa, calice umbilicata, basi excavata, carnosa, demum aquosa, eleganter cærulea, intus alba, unilocularis, 3 lin. lat. Semen. *Nux* subrotunda, compressa, nervosa, bilocularis, 18 lin. lat.

L'Herit. Corn. 6.

The Cornus sericea is a shrub, seldom attaining more than 12 feet height. Its most common stature is from six to eight feet. The stems are numerous, straight, and covered with a shining reddish bark. The root is ligneous, branched, of a light grayish colour, and smells somewhat like liquorice-root; the radicles are reddish. The stem is erect, cylindrical, and branched. The branches are opposite, roundish, spreading, and of a dingy-purple colour. The young shoots are round, ringed, nearly without spots, and of a dark purple colour; the very young ones more or less pubescent. The leaves are opposite, petiolated, ovate, pointed, entire on their margins, nerved, and somewhat veined; having the middle rib and nerves projecting underneath, and sunk above. The under surface of the leaves, particularly near the costa and nerves, is covered with a dense, brownish, villous coat. The young leaves are doubled by the approximation of their sides; when full grown they are plane, as represented in the largest leaf of the plate. They vary in size; but in general when mature, are three inches long and an inch and an half broad. The petioles are one-fourth the length of the leaves, round below, with a slight furrow above, villous and purplish. The

flowers are borne in cymes, which are terminal, pedunculated, erect, flat above, or occasionally a little convex. The expanded flowers of each cyme are not very numerous. Calix monophyllous, four-toothed, villous; the teeth are linear, acute, spreading, persistent, about two lines broad. The corolla consists of four linear, acute, spreading petals, larger than the calix. *Stamens;* four erect, diverging filaments, scarcely longer than the corolla; anthers peltate, oblong, and of a yellow colour. *Pistillum;* germen below, globose-pitcher-shaped, and villous. *Style* filiform, hardly shorter than the stamens. *Stigma* capitated and pubescent. The fruit consists of a collection of berry-formed globular, fleshy drupes, of a beautiful cœrulean blue colour. Each berry is excavated at the base, white within, 1-locular. *Seed;* a roundish, compressed, nerved, 2-celled nut.

The geographical range of the Swamp-Dogwood is extensive. It inhabits moist thickets, the borders of swamps, rivers, creeks, and rivulets. Its common companions are Cephalanthus occidentalis, Vibernum dentatum, V. acerifolium, V. nudum, Cornus alba, and C. stricta. The last mentioned shrub it resembles exceedingly, and may easily be confounded with it unless carefully examined. It flowers in June and July, and ripens its berries in September. In England, where it was cultivated before 1683, by Bishop Compton, it blooms as late as August.

CHEMICAL ANALYSIS.

Under this head, in the article on the Cornus florida, will be found Dr. Walker's analysis of the Cornus sericea. His comparative experiments, of the properties of the Peruvian bark and these two species of Cornus, are extremely interesting, and have produced results highly favourable to these articles, as medicines.

MEDICAL PROPERTIES.

The medicinal virtues of the Swamp-Dogwood, are the same as those of the common Dogwood; and both are allied in their effects to the Peruvian bark. The Cornus sericea is therefore a stimulant and tonic, and may be used in powder, or in tincture with proof spirit. About a scruple and an half, and from that quantity to a drachm of the former, may be given at a dose, and repeated three or four times a day. The usual proportion of the spirituous tincture may be used. I am inclined to think that the

pulverised bark of the Swamp-Dogwood, is not so much used by country practitioners as that of the Dogwood, but it is certainly not less deserving the attention of physicians; particularly as the difficulty of procuring genuine Peruvian bark is well known.

ŒCONOMICAL USE.

The young stems and branches of this species of Cornus are very straight, and when recently cut, quite flexible. They are used in making baskets of a coarse kind, such as the large fish-baskets used in the New Fish Market of Philadelphia; most of these are made of this shrub. They are worked up most easily when the bark is left on them. The bark is mixed with tobacco, and smoked by the Indians of our country. This fact is mentioned by Shœpf, and afterwards by Dr. Barton. The latter tells us that some of these savages of the Delaware stock, call the mixture Kin-ni-ha-nick. The bark of this Cornus is a favourite article of winter food of the Castor fiber, or American beaver. The ripe berries are greedily eaten by the common domestic fowl. From the bark of the more fibrous roots of this shrub, the Indians obtain a good scarlet colour, which they use in dyeing some parts of their dress. (Barton's Med. and Phys. Jour.)

TABLE IX.

Fig. 1. A portion of the Cornus sericea, taken in flower in the month of June.

2. A full grown flower, in front view.

3. A back view of the same.

4. The same without petals.

5. A petal.

6. A stamen showing the oblong pelate anther.

7. The pistil.

8. The berries.

All the figures of the size of nature.

Fig. 3.

Fig. 1

Fig. 2.

Fig. 4.

SYMPLOCARPUS FOETIDA.

SYMPLOCARPUS FŒTIDA.

SKUNK CABBAGE.

Swamp-Cabbage. Skunk-weed. Stinking Pothos. Polecat-weed. Itch-weed. Hellebore. Ellebore Irish Cabbage. Poke. Cow-Collard. Polecat-Collard. Byorn-blad, (or Bear's Leaf,) and Byorn-retter, (Bear's-foot,) of the Swedes who settled in North America.

Beerenwortel. Bonsenakruid, (according to Shœpf.)

Stinkende Zehrwurtz. Germ. (Willd.)

Anhängsel; *Holl.* Hangbast; Eine gattung pflanzen, deren arten in beyden Indien einheimisch sind; folgende sind zu bemerken: *a*) scandens; Appendix arborum *Rumph;* Das Anhängsel der Bäume; *Holl.* Aanhangzel der boomen; *Ceilan.* Potha; *Malab.* Ana-parua; *Cochinch.* Cay Ray leo; Mit den dickeren ranken steigt dies gewächs die bäume hinauf, und lässt die übrigen ranken herab, hängen; trägt kleine, rothe, saftige, essbare beeren; Die Indianer nennen diese und andre Anhängsel der bäume: *Tapanawa; b*) acaulit; Planta innominata *Plum;* Auf Martinique, wo sie von den Einwohnern *Queue de rat* genannt wird; *c*) pinnata; Appendix laciniata *Rumph.*

Praecordia; a) Die sammtlichen Eingeweide der Brust; *Griech.* Phrenes; *b*) Die Gegend der Herzgrube; Die vordere Gegend des Oberleibes; *c*) Die Gegend unter den kurzen Rippen und dem schwerdförmigen Knorpel des Brustbeins. (Polyglot. Lexicon.)

Symplocarpus fœtida, Salisbury. Lin. Sp. Pl. p. 1372. Willd. Sp. Pl. vol. 2. p. 288. Shœpf. Mat. Med. Am. p. 133. Castiglioni, viagg. 2. p. 238, 239. Gmelin. Syst. Nat. vol. 2. p. 596. Thornt. Illus. Mich. Fl. Boreal. Am. vol. 2. p. 186. Cold. Noveb. 214. Lin. Amœn. II. p. 362. Catesb. Car. II. t. 71. Clayt. n. 17. Ait. Hort. Kew. vol. 3. p. 319. ed. 2d. vol. 1. p. 268. Bot. Mag. 836. Barton's Fl. Virg. Gron. p. 60; Elements of Botany, part 3. p. 128, 130. Pers. Syn. Pl. vol. 1. p. 147.

Kalm. it. 3. p. 47. Gron. Virg. 141, et 186. Houttuyn. Lin. Pfl. Syst. 10. p. 151. Pursh. Fl. Am. Sep. vol. 2. p. 398. Nuttall, Gen. Am. Plants, p. 105. Barton's Prodr. Fl. Ph. p. 26. Thatcher's Disp. ed. 2d. p. 150. Coxe's Disp. 3d. ed. p. 210.

SYMPLOCARPUS.

(Salisbury.)

Spatha ventricose-ovate, acuminate. *Spadix* roundish, covered with hermaphrodite flowers. Calix deeply 4-parted, persistent, segments cucullate, truncate, becoming thick and spongy. *Petals* 0. *Style* pyramidal, 4-sided; *Stigma* simple, minute. *Seeds* solitary, immersed in the spongy receptacle. Nuttall.

Cal. Communis, Spatha atro-purpurea, acuminata, ad basin, convoluta, citissime marcescens et contabescens. Partialis quadriphyllus, foliolis crassis succulentis, fuscis, brevibus, acuminatis, excavatis, inflexis, longitudine styli, persistentibus.

Cor. nulla. Spadix ovato-orbiculatus, pedunculatus, spatha dimidio brevior, staminibus foliolisque calicis undique obsitus, per maturitatem in limbum procumbens.

Stam. Filamenta quatuor, erecta, longitudine styli persistentia. Antheræ flavæ erectæ.

Pist. Germen rotundum infra stylum in spadice reconditum. Stylus fuscus, conicus. Stigma obtusum, vix perceptibile.

Sem. Bacca unica, carnosa, globosa, monosperma, extus fusca: in medulla fungosa spadicis plerumque octo vel novem inveniendæ. (Bart. Fl. Vir.)

Symplocarpus fœtida; acaulis; foliis ovatis cordatis, spadice, subgloboso. Mich. Fl. Bor. Am. 2. p. 186.

"Stemless and subaquatic; leaves very large, strongly veined and entire, preceded by conspicuous sheathing stipules; scapes radical, appearing before the leaves; spatha discoloured; calix, style, and filaments persistent, enlarging with the spongy receptacle. Root verticillately fibrous, truncate. Leaves smooth and green, ovate, cordate, enlarging, protected by large glaucous, spathulate-linguiform, veinless bractes. Spatha ovoid, roundish, cucullate, obliquely acuminate, point coarctate, plaited, involutely auriculate at the base, thick and spongy, livid purple, blotched and spotted with pale-green. Spadix pedunculate, simple, almost spherical. Bractes none. Flowers tessellately imbricate, adnate. Calix 4-parted, divided to the base, segments cucullate, compressed at the apex, emarginated, at length becoming very thick. Petals none. Stamina 4, opposite the divisions of the calix; filaments subulate, flat; anthers exserted, short, oblong-oval, 2-celled. Style thick, quadrangular, acuminated; stigma minute, pubescent, shorter than the stamina.

Germ immersed, 1-seeded. Seed naked, large, round, inclosed in the common receptacle. Corculum small, involute, erect, umbilicately attached to a large, solid, carneous perisperm." Nuttall. Classis *Tetrandria*, Ordo *Monogynia*. Lin. Syst.

SYNONYMA.

Dracontium fœtidum. Willd. et Lin.

D. foliis subrotundis concavis. Cold. Noveb. Kalm. it. et Gron. Virg. 141.

D. fœtidum, foliis subrotundis. Gmelin. Syst.

Calla aquatilis, odore allii vehemente prædita. Gron. Virg. 186.

Arum Americanum betæ folio. Catesb. Car.

Pothos Putorii. Barton's Fl. Virg. Gron.

Pothos fœtida, foliis cordatis, spadice subgloboso. Ait. Hort. Kew. ed. 1. vol. 3, p. 319.

Pharm. *Dracontii* Radix.

Qual. Acris, alliacea, nauseosa.

Vis. Incidens, calefaciens, expectorans.

Usus: fol. contrita ad vulnera recentia et ulcera. Tussis consumptiva. Scorbutus et alii morbi radix Ari officin. utilis. *Colden.* Shœpf. Mat. Med.

DESCRIPTIO UBERIOR.

Planta fœtidissima acaulis, et sub floratione aphylla, seu eo tempore folia vix inchoans. Radix perennis sistens radicularum verticillarum. Radiculæ cylindricæ longæ, albo et fusco annulato-variegatæ. Folia quæ post florationem crescunt, magna cordato-ovata sunt, subtus venis conspicue prominentibus; supra quasi exaratis. Costa succulenta infra prominens. In basi foliarum sunt bracteæ spathulato-linguiformes, glaucæ. Spatha ovata, basi auriculato-attenuata, et apice obliquo-acuminata, depressa, cucullata, prorsus purpureo, flavo, et viride picta. Spadix pedunculatus simplex sub-globosus; floribus adnatis. Petala nulla. Calix 4-partitus, profunde divisus et persistens, segmentibus cucullatis, apice compressis et emarginatis. Stamina 4; filamentis subulatis persistentibus. Antheræ exsertæ, breves, oblongo-ovales, duarum loculorum sistens. Stylus crassus, quadran-

gulatus, acuminatus persistens; stigma minimum staminibus breve. Semina nuda, magna, velut rotundata, purpureo et flavo variegata, in receptaculo spongioso immersa. Habitat a Canada ad Georgiam tenus, in uliginosis et ad ripas rivulorum. Barton's Fl. Ph. MS.

Not many persons are unacquainted with the Skunk-Cabbage; though few perhaps, have noticed its singular inflorescence. The multitude of large, rank, fœtid leaves, which grow from a single root, together with the gregarious habit, (if I may use such an expression,) of the plant, attract the notice of every one who passes near the swamps and meadows where it grows; but at the period these are conspicuous, the flowers have disappeared.

I have followed Mr. Nuttall, in adopting the generic term Symplocarpus, imposed by Salisbury;* but not having had access to the volume of the work containing the paper of this gentleman, I have had no opportunity of profiting by the characters on which it was founded.

Symplocarpus fœtida is a subaquatic plant, flowering and leafing from the root. The flowers appear before the leaves; or at least when these make their appearance at this time, they are closely convoluted, as represented in the plates. The leaves are preceded by coloured sheathing stipules; and about the end of April or beginning of May, are fully developed, when they are very large.

* Linnean Transactions.

They are commonly twelve, fifteen, and eighteen inches long; and nine or ten broad. I have seen them, in favourable situations, more than two feet long and twelve inches broad. They are oblong-ovate, heart-shaped at the base, smooth, strongly veined, and have a large succulent middle rib, projecting below. The root consists of a vast number of verticillate cylindrical thick fibres, many of which are near a fourth of an inch in diameter. They diverge from their point of cincture, and penetrate the earth or mire, to the depth of two feet, and sometimes more. The fibres are whitish, coloured with brownish-red rings.

The flowers are concealed in a singular spongy ovoid spathe, acuminated and depressed obliquely at the apex, and auriculated at the base; variegated with spots of livid-purple, yellow, lake-green and red. These spathes may not be unaptly compared to some kinds of shells. Upon opening them, the flowers are found situated upon a globose pedunculated spadix. They are destitute of petals; have a 4-parted calix, divided at the base. Segments hooded, flattened, and notched at the apex. There are four stamens, situated opposite to the divisions of the calix, having flat awl-shaped filaments, with short oblong anthers. The style is thick and four-sided; stigma shorter than the stamens. The seeds are numerous, large, naked, irregularly roundish, and speckled with purple and yellow. They are immersed in a large spongy receptacle near to the surface, as shown in the section, (fig. 4. plate 10.)

Every part of this curious plant, even the seeds, is strongly imbued with the peculiar alliaceous odour, which has given rise to the various vulgar names enumerated at the head of this article, expressive of the obnoxiousness of the plant. I think the odour emanating from the broken spathe and the bruised seeds, resembles exceedingly, the smell of assafœtida. The leaves have, perhaps, a more disagreeable smell than any other part of the plant. Their odour has been compared to that thrown off by the skunk or pole-cat; and, like that, it may be perceived at a considerable distance. The smell from the spathe and flowers, is pungent and very subtile. Experience leads me to believe they possess a great share of acridity; having been seized with a very violent inflammation of my eyes, (for the first time in my life,) which deprived me of the use of them for a month, by making the original drawings of these plates. The pungency of the plant was probably concentrated by the closeness of the room, in which many specimens were at the time shut up. In the open air, however, the Skunk-cabbage has certainly no pernicious effect; and the tales of its deadly influence on those who approach it, published by Dr. Thornton, in his gorgeous folio, have no better foundation than those of the Upos tree of the East.*

* It has been reserved for our countryman, Dr. Horsefield, to obliterate from the page of Natural History, the ridiculous fables concerning this tree, which the wickedness and credulity of the world had combined to make current.

According to the observations of Mr. Nuttall, "the seed of the Symplocarpus does not appear to possess any thing like a proper cotyledon, the embryo formed in the exact posture of the growing plant, (with the radical downwards,) differs not from it in any particular but that of size. In place of a cotyledon there is a sheathing stipule similar to that which is ever after produced; in fact it is viviparous. The embryon is seated in a small umbilical or hemispherical depression, in the upper end of what may be called a vitellus rather than a perisperm, judging from its functions; this callus, or seminal tubercle is roundish and turbinate, nearly as large as a filbert nut, very solid and carneous, possessing in a high degree the alliaceous fæter of the grown plant; the mutual point of attachment subsisting betwixt this body and the embryon is at first a minute and nearly central funiculus which enlarges and becomes more distinct during the progress of germination; but what appears to be most singular in it, is the length of time which it continues attached to the growing plant, apparently inert at the base of the caudex for twelve or eighteen months."

The Skunk-cabbage is exclusively a native of America,* and grows in boggy woods and meadows, in swamps, on the margins of brooks and rivulets, and other moist places. Extreme humidity and

* It was introduced into England by Peter Collinson, Esq. in 1735. It flowers there in March and April, as it does in this country.

a rich soil, are necessary to its luxuriant growth; and it appears also to delight in shade. It seldom appears sporadically. Where found at all, it is generally in abundance.

MEDICAL PROPERTIES.

The sensible properties of Symplocarpus fœtida, indicate its place in the Materia Medica. Every part of the plant is powerfully antispasmodic, and it is of course referrible to that class of medicines. Hitherto the employment of this article has been too much limited; for it seems entitled, from its virtues, to the general attention of physicians. Shœpf long ago mentioned the medicinal powers of the root of the Skunk-cabbage. He speaks of it as an expectorant, and as useful in phthisical coughs. At this time, too, this plant is much used for the same purpose in many parts of the United States; and it is said that great alleviation of the cough is produced by the judicious use of the medicine. The Rev. Dr. Cutler, and others, have given it considerable reputation as a palliative in the paroxysms of asthma; in which it is reputed to have afforded relief, when other means had failed. Thirty or forty grains of the dried pulverised roots, are recommended to be given during the paroxysm, and repeated as often as circumstances may require. After the fit has gone off, it is necessary to persevere in the use of the medicine;

its continuance is recommended, till the patient be entirely cured. This practice is said to be imitated from that of the Indians, in the treatment of this complaint.* Dr. Thatcher relates, on the testimony of a correspondent, one case of violent hysteria, in which two tea-spoonfulls of the powdered root, given in spirit and water, procured immediate relief. Musk, and other antispasmodics, had been ineffectually tried in this case. On repeating the use of the medicine, it afforded more lasting relief than any other remedy had given. The same writer mentions, on the authority of this correspondent, that when administered in cases of parturition, it relieves the spasms which frequently affect the abdominal muscles. The instances mentioned by Dr. Thatcher of the curative virtue of our plant in chronic and acute rheumatism, deserve further attention; but those dropsical cases hinted at, which he says were relieved by two tea-spoonfulls of the powdered root, are not, I think, of any importance. Indeed, I much doubt whether the cure of dropsy has in any instance been effected by this medicine; neither do its properties justify, for one moment, the belief. The seeds are said to afford more relief in asthmatic cases than the root; and this I believe very probable, for they are remarkably active, pungent, and, as has before been mentioned, exhale the odour of assafœtida.

* Thatcher's Disp.

The bruised leaves are frequently applied to ulcers and recent wounds, and it is said with good effect. They are also used as an external application, in cutaneous affections; and I have heard of the expressed juice being successfully applied to different species of herpes. The leaves are used in the country to dress blisters, with the view of promoting their discharge. For this purpose they are slightly bruised, by being laid on a flat board, and having a rolling-pin passed a few times over them. This is necessary to reduce the projecting middle rib, nerves, and veins, so as to enable every part of the leaf to come in contact with the surface of the blister. Colden recommends the Skunk-cabbage in scurvy, as well as in all other diseases in which the officinal wake-robin, (Arum maculatum,) has been found useful. I have had a good deal of experience in this disease; and though I have never used the subject of this article in the treatment of it, I have no hesitation in declaring my disbelief of its usefulness in this distressing complaint. I have not had any experience with this plant for medical purposes, except with the leaves, as above-mentioned, to dress blisters. For this purpose I can recommend them, where it is desirable to promote a large and speedy discharge, and no stimulating ointment is at hand. But it is only on the authority of those whom I have quoted, that I invite the notice of physicians to the plant, in the treatment of consumptive cough, asthma, and hysteria. In the latter complaints, its antispasmodic virtues seem to promise some good.

Fig. 2.

Fig. 1.

Fig. 3.

Fig. 4.

Fig. 5.

SYMPLOCARPUS var. 3. ANGUSTIFOLIA.

SYMPLOCARPUS β. ANGUSTISPATHA.

NARROW SPATHED SKUNK-CABBAGE.

(Symplocarpus. Nat. Syst. Juss. *Aroideæ*.)

SYMPLOCARPUS β. angustispatha: spatha lanceolata, apice lineari-attenuata; spadice globoso longe pedunculato. Stipulis et foliis inchoatis, purpureo striatis. B.

DESCRIPTIO UBERIOR.

Planta simillima Symplocarpo fœtida, et forsan vix ultra varietatem, perquam spatha discrepans. Spatha lanceolata, in longum acumen terminens; colore atro-purpurea non maculata. Spadix longe pedunculatus, minor quam in altera specie, et in colore et forma non idem. Folia inchoata virido et purpureo striata; stipulis virido-purpureis. Habitat cum S. fœtida, idem tempore florens. B.

THE above variety of the common Skunk-cabbage, I discovered near this city; and I figured the only two specimens found. One of these is represented in the plate, and one of the spathes of the other. It is needless perhaps to remark, that it has an exceedingly close resemblance to the S. fœtida. It differs, however, in so many particulars, that I have no hesitation in giving it to the public as a decided variety. It yet remains to be proved by future examinations, whether it can form a legitimate species.

The whole plant is more slender than the common one. The root is somewhat smaller. The spathe is long, narrow, purple, entirely without specks or spots, and of a beautiful shining dark purple colour. The spathes of the specimen not here figured, were narrower than those of plate 11; and the smallest of them is separated in fig. 8, plate 11. The young convoluted leaves and stipules are deeply tinged with purple, and somewhat striped with this hue. The spadix is supported by a very long peduncle; is half the size of that in the S. fœtida, and of a light umber colour; in the common one it has an ochroleucous hue. The flowers are also smaller than in the Skunk-cabbage. The fruit I have not yet seen.

MEDICAL PROPERTIES.

This variety has the same rank, alliaceous odour as the common Skunk-cabbage; and its sensible properties are the same. Consequently its medicinal virtues will be found not to differ.

TABLE X.

Fig. 1. Is a representation of Symplocarpus fœtida in flower. The drawing made from a specimen procured in the first week of April.

Fig. 2. The spadix covered with flowers, brought into view, by cutting away the spathe.

3. A flower magnified, showing the calix, stamens, and pistil.

4. The fruit divided in half, longitudinally, bringing into view the seeds immersed in the spongy receptacle.

TABLE XI.

Fig. 5. The external half of the globose pericarp, or spongy receptacle.

6. A seed.

7. The variety described, page 133, and there called Symplocarpus β. angustispatha.

8. A spathe severed from the other specimen of this variety which was found with fig. 7.

9. The spadix of fig. 7, covered with flowers.

All the figures of the natural size except fig. 3, plate 10, which. as already mentioned, is magnified.

Fig. 1

Fig. 7

Fig. 2 Fig. 3 Fig. 4 Fig. 5 Fig. 6

CASSIA MARILANDICA

[Maryland Senna.]

CASSIA MARILANDICA.

AMERICAN SENNA.

Wild-Senna. Maryland-Cassia. Senna.

Marilandische Cassie. Germ. (Willd.)

Cassia. *Greek.* Kassia, kasie.

Deutsch. Cassia, Kassien.

Hol. Kassie.

Dan. Cassie.

Schwed. Cassie.

Engl. The Cassia.

French. La Casse, le Cassier.

Ital. &c. Cassia.

Cassia Marilandica, L. Hort. Cliff. 159. Hort. Upsal. 100. Roy. Lugdb. 467. Mill. Dict. n. 6. Kniph. cent. 12. n. 22. Du Roi Harbk. 1. p. 133. Willd. Arb. 54. Dill. Elth. 351. t. 260. f. 339. Gron. Virg. 65. Mart. cent. 23. t. 23. Houttuyn Lin. Pfl. Syst. 3. p. 520. Willd. Plant. tom. 2. part 1. p. 524. Mich. Fl. Boreali-Am. vol. 1. p. 261. Pursh, Fl. Am. Sep. vol. 1. p. 306. Muhl. Cat. Pl. Am. Sep. p. 42. Barton's Prodr. Fl. Ph. p. 49. Barton's Collections, 3d ed. part 1. p. 31. Coxe's Am. Disp. 3d. ed. p. 248. Shœpf. Mat. Med. Am. p. 63. Thatcher's Disp. 2d ed. p. 177. Pers. Syn. Pl. vol. 1. p. 458. Ait. Hort. Hew. 2d ed. vol. 3. p. 29. Chapman's Elem. Thera. &c. vol. 1. p. 209.

CASSIA.

Gen. Plant. edit. Schreb. n. 700.

Cal. 5-phyllus. *Petala* 5. *Antheræ* supremæ 3, steriles; infimæ 3, rostratæ. *Lomentum.* (Willd.)

Cal. 5-phyllus. *Pet.* 5. subæqualia. Anth. supremæ 3, steriles, infimæ 3, rostratæ, in filamentis longioribus incurvis. *Legumen.* membranaceum 2-valve. (Pursh.)

Nat. Syst. Jus. *Leguminosæ.* Classis XIV. Ordo XI.

Cassia, T. L. * Senna, T. * *Casse, Sene.* Calix 5-partitus coloratus deciduus. Petala 5, quorum inferiora majora. Staminum filamenta 10 distincta, 3 inferiora longiora antheris longis arcuatis, 4 lateralia antheris brevibus, 3 superiora brevia antheris effœtis. Germen pedunculatum. Legumen oblongum 2-valve dissepimentis transversis multiloculare loculis 1-spermis, nunc planum membranaceum siccum, latius & breve, aut longum & angustius, nunc subcylindricum lignosum intus sæpe pulposum vix dehiscens. Arbusculæ aut suffrutices; folia pinnata, opposite 1-12-juga aut rarius multijuga, petiolo communi ad basim aut et inter foliola sæpe glanduloso; flores axillares spicati aut rarius subsolitarii. An ratione fructus dividendum genus in Sennam legumine membranaceo & Cassiam legumine pulposo? Juss. Gen. Plant. p. 348. ed. 1789.

Cal. Perianth five-leaved, (five-cleft, Gært. Juss.) lax, concave, coloured, deciduous. *Cor.* Petals five, roundish, concave; lower ones more distant, more spreading, larger. *Stam.* Filaments ten, declined; the three inferior ones longer; three inferior anthers very large, arcurate, beaked, opening at the tip; three lateral ones without a beak; three upper ones very small, barren. *Pist.* Germ. somewhat cylindrical, long, pedicelled; style very short; stigma obtuse, ascending. *Peric.* Legume oblong, with transverse partitions. *Seeds* several, roundish, affixed to the upper suture.

Calix 5-leaved. *Petals* five; three upper anthers barren; three lower ones beaked. *Fruit* a legume.

Obs. Tournefort divided the genus into two; cassia with oblong legumes, entire partitions, and generally pulpy cells; and senna, with gibbous, inflexed, and very thin partitions. Gærtner has adopted his two genera with the following essential characters:

Senna. *Calix* five-cleft, deciduous. *Cor.* Petals five, lower ones larger. *Stamens* ten, separate; three upper anthers barren, the rest fertile; three lower ones arcuate. *Legume* membranous, many-celled. *Seeds* albuminous. *Embrio* straight.

Cassia. *Flower* as in senna. *Legume* long, cylindrical, woody, not opening by valves, many-celled; cells filled with pulp. *Seeds* albuminous; albumen with a chink on each side. *Embrio* straight.

Nat. Ord. Lin. *Lomentaceæ.*

Classis *Decandria.* Ordo *Monogynia.* Ency.

CASSIA Marilandica. C. foliis octojugis ovato-oblongis aequalibus, glandula baseos petiolorum. Willd.

C. glabriuscula; foliis 8-jugis lanceolato-oblongis mucronatis subæqualibus, glandula petiolari obovata, racemis axillaribus et paniculato-terminalibus, leguminibus-linearibus arcuatis glabris. Pursh.

C. Marilandica. Herbacea, glabriuscula: foliis 8-jugis, sublanceolato-oblongis, utrinque obtusiusculis; glandula petiolari obovata: spicis axillaribus et paniculato-terminalibus: antheris atro-fuscis

Obs. Foliola mucronata. Legumen angusto-lineare, arcuatum, glabrum. Mich. Fl. Bor.

SYNONYMA.

CASSIA mimosae foliis, siliqua hirsuta. Dill. Elth.

C. foliis octo sæpius parium ovato-oblongis æqualibus, glandula supra basin petiolorum. Gron. Virg.

DESCRIPTIO UBERIOR.

PLANTA herbacea 3, aut 4 pedalium proceritate; undique præter basin petiolum et fructum, glabriuscula. Radix perennis, lignea, contorta, nigra; nunc horizontalis, nunc in terra profunde immersa; radiculis pluribus, extus atris intra flavis. Caules multi, erecti, teretes; ramis subhorizontalibus tanquam cum cardine articulatis. Folia 8-juga, ovato-oblonga, velut mucronata. Glandula petiolari obovata. Flores in racemis axillaribus siti. Petala obovata, 5, quorum inferiora majora. Staminum filamenta 10. Germen pedunculatum albido-villosum. Legumen lineari-longum arcutatum sparse hirsutum. Habitat in arenosis locis prope rivos, a Novo-Eboraco ad Carolinam, Augusto florens.

Barton's Fl. Ph. MS.

THE generic name of this plant is of Asiatic origin, and was brought into Greece along with the commercial article which it denoted, by the Phœnician merchants.* The specific appellation was

* "It is the קציעה, *ketsieh*, of the Hebrews and other orientals. In the books of the Old Testament it occurs, indeed, only once, and that in the plural number. "Thou lovest righteousness and hatest wickedness: therefore God, thy God, hath anointed thee with the oil of gladness above thy fellows. All thy garments smell of myrrh and

given by Linnæus, in conformity with a common custom, of which later discoveries have shown the impropriety: that of naming a new

aloes, and cassia."—Ps. xlv. 7, 8. This psalm, we apprehend, may be referred without hesitation to the reign of Solomon. The plural termination was probably adopted by the Hebrews, on account of the small detached pieces into which the bark was usually divided when it came into the hands of the merchants; but the seventy, in conformity with the general usage of Greek writers, give it in the singular number, and with a single σ, which appears to be the original orthography. But though the Phœnicians communicated the name to the Greeks, they did not themselves adopt that by which this precious commodity was known in its native climate. In the Hebrew language of which the Syro-Phœnician is only a different dialect, the verb קצע signifies to strip any thing of its covering; and thence was naturally applied in a substantive form to denote the bark of a tree separated from the trunk: and the high value which was set on the aromatic bark brought from the remotest regions of the then known earth, might as naturally cause it to be called bark by way of eminence; in the same manner as another kind of bark is thus distinguished in modern times. The word cassia occurs in two other passages of our common translation of the Old Testament: Exod. xxx. 24. Ezek. xxvii. 19; but in these the original קרת, which the septuagint in Exodus render ἴρις, in Ezekiel appear not to have had in their copies. It was probably somewhat different from cassia; but from its connection in the book of Exodus with myrrh, cinnamon and sweet calamus, appears to have come from the same countries, and to have possessed similar properties.

"This oriental aromatic is the cassia of modern cookery, but not of modern botany. We must therefore refer for its character and history to the article *laurus*, under which genus it is now placed.

"The naturalist has often reason to lament that travellers and merchants have given the name of one thing long known to another recently discovered, on account of a real or fancied resemblance in a single particular, although in every other respect it is entirely different. Such has been the fate of cassia. The Romans used the word with

species of any genus, from the particular place whence it was sent to him. Though the first specimens of Cassia Marilandica were transmitted to Linnæus from the state of Maryland, the plant is now known to be extremely common in almost every state of the Union, south and westward of New York. Inappropriate as the specific name is, however, it still does, and always ought to stand, unchanged.

considerable latitude. When Virgil, extolling the simple fare of the husbandman, says,

"Nec casia liquidi corrumpitur usus olivi,"

he cannot be supposed to speak of the cassia which he mentions in his second eclogue, as interwoven with the flowers of the violet, poppy, narcissus, and sweet smelling anise in the garland made for Alexis by the naiad. In the former passage he undoubtedly alludes to the aromatic bark which the luxurious citizens of Rome infused in their table and culinary oil to give it a grateful smell and flavour. In the latter he must have intended some odoriferous herb or shrub which is a native of Italy; but by what name it is now known, cannot easily be determined.

"In the middle ages, the Arabian and Greek physicians, as appears from the writings of Avicenna and Myrepsus, acknowledged two kinds of cassia; one cassia aromatica, a native of India, the cassia of the ancients; the other, cassia solutiva, a native of Egypt, totally different in its general appearance, botanical characters, and medical qualities; and which appears to have been honoured with the same name as that which from time immemorial had distinguished the precious oriental spice, merely on account of its pleasant smell; for we are informed by Alpinus, that when he was in Egypt, in the latter part of the sixteenth century, the natives took great delight in walking early in the morning in the spring season near plantations of this kind of cassia, and regaling themselves with the fragrance of its flowers. To this species, and its numerous congeners, the term cassia, as a generic appellation, is confined by modern botanists." Ency.

The wild senna* is a beautiful plant. It is about three or four feet high, with stems rising erectly from the root. The root is perennial, mostly horizontal, but sometimes perpendicular; contorted, irregularly shaped, woody, black, and covered with a multitude of fibres also of a deep black colour externally, and yellow within. The stems many, often simple, herbaceous, cylindrical, either entirely smooth, or furnished with a few hairs. The leaves are alternate, rather long, green above, and pale underneath. Leaflets in eight pairs, ovate-oblong, equal, and yellow on the margin; a gland at the base of the petioles. Flowers bright orange-yellow, in short axillary racemes, on the upper part of the stem. Legumes three or four inches long, a little curved, mucronate, bordered with conspicuous joints, and a few scattered reddish hairs.

This plant is pretty common from New York to Carolina; and where met with, is generally abundant. Though it sometimes is found remote from water, it will always, I think, appear on examination, that such situations are exsiccated swamps or meadows. It delights in a low, moist, gravelly or sandy soil, prefering the borders of rivers, creeks, and such watery places, to any other situations; and flowers from the last of June to the last of August.

* The Cassia Marilandica was introduced into England in 1723, by Peter Collinson, Esq. It flowers there in August and October.

MEDICAL PROPERTIES.

Wild senna is now well known to be a valuable cathartic of the milder class. It is little, if at all inferior, to the senna of the shops;* and is doubtless one of the most important of our indigenous medicines. Professor Hewson of Philadelphia, informed me that he had used it occasionally, and with the same good effect as

* It appears by the researches of Mon. Hippolite Nectoux, that botanists and writers on the Materia Medica, have hitherto been mistaken in supposing the true senna of the shops, to be the leaves and follicles of the Cassia senna of Linnæus. This intelligent and industrious inquirer instituted, in Egypt, a series of investigations respecting the senna, which resulted in the singular fact, that Cassia senna, L. which had always been considered as the true senna, is in reality a weed, with which the real senna is adulterated in Egypt, to augment the quantity produced by the annual growth of the other two plants which constitute the senna. As the work of Mons. Nectoux is rare in this country;* and the facts so satisfactorily stated in it, very interesting, I shall here subjoin a brief summary of his discoveries.

Mr. Nectoux informs us that his first object after landing in Egypt, was the senna. The commonly received name of Alexandrian Senna, led him to the expectation of finding it in the vicinity of the city whence the drug takes its name. He did not, however, find it, after a considerable search, either at Alexandria or at Rosetta, Damietta, or Cairo. He informs us that not a stalk of senna grows in the Delta; and that the name Alexandrian, is given, and currently adopted, merely because that city is the *entrepot* whence it is exported to Europe. At Cairo he saw the process of preparing the senna

* The only two copies of this splendid work I believe, which have come to this country, were presented by Mr. Michaux, of Paris; the one to Dr. Hosack, and the other to myself.

common senna; and I have had some experience with it in my own practice. At the Marine hospital of the Navy-yard, I have for

for the European market. It consists in separating the leaves and follicles from the stalks, and packing them in round bales, weighing in gross weight from 560 to 640 lbs. Here he first observed that there were different kinds of pods, and that their characters indicated two different species of plants. While at Cairo, a specimen of the growing senna was brought to him by a native, who found it at Bassa-Tine, a village situated at the entrance of the valley of Egarement, and called it Sena-belledy. *Belledy* is the term by which the Egyptians designate their indigenous plants, in contradistinction to exotics, which they denominate *araby*. In passing through the provinces of Bene-Souef, Fayoum, Minie, Siout, Girgai, and as far as Carnak, he did not meet with any of the species of senna. Around the ruins of Carnak and Luxor he observed some few stalks of the same species of senna that he had received from Bassa-Tine. On entering the valley it was found in great abundance, particularly on the right bank of the Nile, opposite to Hermuntis. The *Fellachs* or peasants, called it also sena-belledy, or wild senna. It grows naturally with holcus sorghum. The fellachs after gathering in the holcus, make two crops of senna, in which, however, they take no great care. At Esnech, Mr. Nectoux caused a number of bales of senna to be opened. On inspecting them he was much surprised to find some of them contained only a species of cynanchum, different from any he had before seen. It was called sena-mekky, senna of Mecque. The cheick who superintended the *entrepot* at Esnech, told him it was also called arguel; that it possessed the same properties as the senna, and that the guellaps, or slave-merchants, who brought it from the country of Barabras, sold it for senna. By paying a trifle, Mr. Nectoux obtained permission to inspect a number of senna bales, brought in a caravan which arrived at Darao. In some of them he found senna with large beans, which was called by the merchants *sena guebelly*, senna of the mountains; others contained only arguel; and some a mixture of the two plants. When the *sena-belledy* was shown to them, they recognised it by that name, and added, that it was *wild* or *weed* senna; and that it occasioned whisks or gripes. They said, as did those at Esnech,

some months past substituted it for Alexandrian senna, and frequently employed it. I have also, in a single instance, used it in my

that the senna of the mountains and the *arguel*, were found growing three days' ride from Sienne. Mr. Nectoux sought fruitlessly at this place, for some few plants of senna and arguel; but he only discovered the senna of Thebaïd. At the island of Phille he offered rewards to those who should show him the senna; but here, as at Sienne, his exertions proved of no avail. He found only a single stalk of the plant, in the environs of a ruined village. Its appearance was different from that of the sena-belledy, which grew by its side. Upon comparing it with the imperfect specimens he procured at Sienne, and finding the stems and leaves similar, he was confirmed in his discovery of a new plant. After further researches he learned, that the neighbourhood of Sienne produced *senna* and *arguel* in abundance. He met with it in the valley of Darao, and in the vallies among the mountains situated a short distance from the city. He constantly remarked that the antelopes, &c. which browsed on other plants, never touched the arguel or senna. Mr. Nectoux visited Nubia, which is known in Egypt by the name of the valley or country of Barabras. It is a narrow valley through which the Nile flows. The view is confined on the two sides, alternately, by a lofty chain of granitic mountains. Senna and arguel are the chief productions of this country. They are not the objects of particular cultivation, but grow naturally on the sides of the hills and in the ravines. Each person has the privilege of gathering what grows in his district. Two crops are annually made, the productiveness of which depends on the duration of the rains which fall periodically every year. The first and most fruitful is gathered at the termination of the rains, which commence at the summer solstice, and end in August or the beginning of September. The second crop is gathered in April, and is small. No expense attends the preparation of these plants, which consists in cutting and spreading them on the rocks to dry. This process in that warm climate only occupies a single day. The senna and arguel are put up in small bales, weighing about a quintal each, and are conveyed by camels to Sienne and Darao. They are sold for 300 to 340 parats, (eleven or twelve francs,) each. They are afterwards carried to the farmer general, at

family. In all these trials I have had reason to confirm the high character of the plant, which it has long maintained. The leaves alone

Cairo, who purchases them at eleven or twelve pataques, (thirty to thirty-three francs,) and sold by him to the European factors for thirty or thirty-three pataques, (one hundred and six francs,) the quintal. Mr. Nectoux was informed on good authority, that the produce of the two crops varies annually, from seven to eleven hundred quintals; one-third of which is arguel. The demand from Europe is generally from fourteen to fifteen hundred quintals; and never less than twelve. The Egyptian merchants therefore mix from three to four hundred quintals of the *sena-belledy*, or wild senna, (cassia senna of Linnæus,) with that brought from Nubia. This adulteration is made at the *entrepots* of Kene, D'Esnech, Darao, and Sienne; around which places the sena-belledy grows abundantly. Mr. Nectoux concludes by inviting the attention of his government to the introduction and culture of senna, (cassia lanceolata of Lamark,) and arguel, (cynanchum oleæfolium of Nectoux,) in its colonies, with the view to avoid this adulteration.

The following are the descriptions given by Mr. Nectoux of the three different plants known in commerce as senna:

"The sena-belledy, or wild senna, is the cassia senna of Linnæus, cassia foliis sex-jugis subovatis, petiolis eglandulatis. La Casse d'Italie, Lamark, Encyclopedie Method. Botan. p. 646; Sena Italica, sive foliis obtusis, C. B. p. 397; Tourn. 618, Rai. Hist. 1747; Moris. Hist. 2. p. 200, sec. 2. tab. 24, fig. 2; sena, Dod. pempt. 361. lob. ic. p. 88; Sena Italica foliis quinque jugatis cordatis obtusis. Mill. Dict. No. 2; cassia, Burman. Flora Indica, p. 96. tab. 23. f. 2.

"The sena-guebelly or sena-mekky, mountain-senna, is the cassia lanceolata, Lamark. Encyclopedie Method. Bot. p. 646; cassia lanceolata, foliis quinque jugis; Forskall Flora Egyptiaca, p. 85, No. 58; Sena-Alexandrina sive foliis acutis, Bauh. pin. 397. Moris. Hist. 2. pl. 201. sec. 2. tab. 24. f. i.; Tourn. 608; Rai. Hist. 1742: Mill. Dict. No. 2; Sena B. 377; Sena orientalis, Tabern. Herb. p. 2. f. 220.

"Linnæus has confounded this plant with Italian senna.

have commonly been used; but I have made use of the dried leaves and follicles, carefully rejecting the leaf-stalks, and beg leave to recommend this manner of employing the plant for medical purposes. I believe the best time for collecting it would be when the pods are ripe, which is about the last of August.

The affinity of wild senna to two of the articles which constitute the senna of commerce, renders it probable, that these foreign

"The arguel, called also Sena-Mekky, though very little is found in the senna which is brought into Egypt by way of Suez, is not described by any author. It is a new species, to which Mr. Nectoux has given the name of Cynanchum Oleæfolium. It has all the characters of the genus Cynanchum, but possesses the same medicinal properties as the true senna, and some even say it is preferable as a medicine. It is easily distinguished by its stalk, which supports itself; by its oval-lanceolated leaves, covered with long down, as is also its stem and calixes; and by its long dichotomous peduncles, bearing at the end of their division, five or six small flowers disposed in an umbel, surrounded with narrow leaflets. It is not climbing as the greater part of the species of this genus are. Its branches are single, flexible, in considerable numbers, and spreading from the stem."

In the manuscript of Lyppi on the Egyptian plants, there is one designated under the name of Asclepias Africana foliis Oleæ. It is not accompanied with either a description or drawing; neither does it exist in any herbal. There is of course, some doubt respecting the identity of this and the plant described by Mr. Nectoux.

It has been stated erroneously, that the follicles or beans of senna are not used in Egypt. Mr. Nectoux states that they are found in all the shops of the Egyptian druggists, both mixed with and separate from the leaves.

I have found all the leaves and follicles, as figured by Nectoux, in the senna of our shops, and exhibited them to my class in verification of his observations. The follicles of Cynanchum appear to be most rare.

plants might be cultivated without difficulty, and with great profit, in our southern states. I have understood that the Alexandrian senna has been cultivated in North Carolina with success.

Since it appears that we do not obtain pure senna from Egypt; and that the adulterating plant, or *Cassiasenna* is much inferior to our native species, it cannot be doubted, that the cultivation of the Cassia lanceolata, and the Cynanchum Oleæfolium, and mixing them with the Cassia Marilandica, would afford a much purer senna than we now use; and at one-fourth the cost of the imported article. These facts and hints are certainly not unworthy the attention of our southern planters and physicians.

TABLE XII.

Fig. 1. Represents the upper portion of a stalk of the Cassia Marilandica of the natural size.

2. A side view of a flower.

3. A front view of the same.

4. The same, the petals being removed; showing the calix, stamens, and pistil.

5. A stamen.

6. The pistil.

7. The seed pod. The legumes are often more bow-shaped than this one.

Tanner, Vallance, Kearny & Co. sc.

GERANIUM MACULATUM.

(Spotted Cranes-bill.)

GERANIUM MACULATUM.

SPOTTED CRANE'S-BILL.

Common Crane's-bill. Alum-root. Racine a Becquet. Sometimes in Lancaster-county (Penn.) and in Kentucky, Crow-foot.

GENUS GERANIUM.

Germ. Der Storchschnabel; das Schnabel kraut. Gefleckter Storchschnabel.

Dutch. Oijevaarsbek; Kraanhals.

Dan. Storkenæb.

Swed. Storknäf.

Engl. The crane's bill.

Fran. Le geranion; la geraine; bec de grue, ou de cicogne.

Ital. Geranio; becco di gru.

Span. Jerenio; pico de ciguenä; hierba del pico; pico de grulla; aguja; (pamplilla).

Port. Geranio; agulha; Bico de grou; bico de cégonha.

Russ. Schuratelinei nos.

Pol. Pychawiec, zorawie nozki.

Bohem. Capjnusek, capu nos.

Ukrain. Karvamozenzel.

Hung. Daru orru fu.

GERANIUM Maculatum. L. Sp. Pl. 955. Gron. Virg. 101. Burm. Geran. 17. Mill. Dict. n. 14. Cavan. Diss. 4. p. 213. t. 86. f. 2. Dill. Elth. 158. t. 131. f. 159. Houttuyn Lin. Pfl. Syst. 8. p. 415. Mich. Fl. Boreali-Am. vol. 2. p. 38. Bigelow. Med. Bot. p. 84. Muhl. Cat. Pl. Am. Sep. p. 62. Pursh.

Geranium maculatum.

Fl. Am. Sep. vol. 2. p. 448. Barton's Collections, &c. part 1. p. 8, 45. part 2. p. 1. Barton's Prodr. Fl. Ph. p. 69. Nuttall, Gen. Am. Plants. Coxe's Am. Disp. ed. 3d. p. 343. Thatcher's Disp. ed. 2d. p. 224. Ait. Hort. Kew. ed. 2d. vol. 4. p. 188. Willd. Sp. Plant. tom. 3. part 1 p. 705.

GERANIUM. (Tourn. L'her. Vent.)

Gen. Plant. ed. Schreb. n. 1118.

Cal. 5-phyllus. *Cor.* 5-petala regularis. *Nect.* glandulæ 5-melliferæ, basi longiorum filamentorum adnatæ. *Arilli* 5-monospermi aristati ad basin receptaculi rostrati; aristis nudis simplicibus (nec spiralibus nec barbatis).

Nat. Syst. Juss. *Gerania.* Classis XIII. Ordo XIII.

Geraniceæ, St. Hillaire.

Geranium, T. L. * *Pelargonium*, Burm. * *Geranion*, *Geraine*. Calix 5-phyllus aut 5-partitus. Petala 5 æqualia aut in-æqualia. Staminum filamenta 10, basi in urceolum aut tubum coalita, nunc omnia antherifera, nunc quædam sterilia Germen modo basi 5-glandulosum, modo pedicello insidens fistuloso intrà florem hinc hianti. Fructus dehiscens in capsulas 5, ovatas aut basi acutas, 1-2-spermas, aristatas aristis stylo persistenti adnatis, a basi ad apicem dehiscentibus una cum capsulis; corculum lobis a medio reflexis. Herbæ aut suffrutices; folia alterna, aut opposita; pedunculi florum 1-2-flori aut multiflori. Corolla in Europæis speciebus regularis admittit calicem 5-phyllum aut 5-partitum, germen basi 5-glandulosum, glandulas petalis alternas, caulem herbaceum, folia sæpius opposita & pedunculos axillares, in 1-2-floris stamina omnia fertilia & capsulas ovatas aristis supra revolutis, in multifloris stamina 5 sterilia & capsulas basi acutas aristis tortilibus. Corolla in Africanis irregularis quasi papilionacea, petalis 2 superioribus erecto-reflexis, intra calicem 5-partitum non polyphyllum, profert germen non basi glandulosum, staminum filamenta 7 aut pauciora antherifera cæteraque sterilia, capsulas basi acutas aristis tortilibus barbatis, pedicellum floris hinc fistuloso-cavum intra petala & extra stamina apertum, caulem sæpe suffrutescentem, folia plerumque alterna, pedunculos sæpius multifloros & foliis oppositos. Numerosissimas D. Cavanilles in accurata Monographia nitidis expressas iconibus recensuit species generis in posterum dividendi, Africanis ad Pelargonium Burmanni rejectis. Ex ipso congener *Grielum L.* 5-stylum, præterea simillimum Europæis: an idem posthac restituendum?

Juss. Gen. Plant. ed. 1789. p. 268.

Nat. Ord. Lin. *Gruinales.*

Class *Monadelphia*. Ordo. *Decandria*. Lin. Syst.

Gen. Ch. *Cal.* Perianth inferior, of five ovate, acute, concave, permanent leaves. *Cor.* regular, of five large, obovate or obcordate, equal, spreading petals. Nectary five glands at the base of the germen, alternate with the petals. *Stam.* Filaments 10, awl-shaped, recurved, united at the base into a small cup, five alternate ones longest, all shorter than the petals; anthers oblong, versatile, five of them occasionally abortive. *Pist.* Germen superior, with five furrows, beaked; style central, awl-shaped, longer than the stamens, permanent; stigmas five, oblong, reflexed. *Peric.* Capsules five, aggregate, membranous, globose, lateral, separating at their inside, each attached upwards to a long, linear, flat, pointed, rigid, smooth awn, at length elastically recurved, adhering by its point to the summit of the style. *Seeds* solitary, lateral, roundish, their surfaces smooth or dotted.

Ess. Ch. Calix of five leaves. Petals five. Nectariferous glands five. Fruit beaked, of five aggregate capsules, each tipped with a long, recurved, naked awn.

Obs. This genus, as above defined, contains only the *Gerania columbina* of Linnæus, or what are commonly called European Geraniums, or Crane's-bills, bearing but one or two flowers on a stalk. (See Erodium.) Thus it is adopted by Willdenow, who has 39 species, 13 of which are natives of Britain. They are tolerably naturally distributed into three sections. Ency.

Geranium maculatum, erectum, retrorsum pubescens, caule dichotomo, foliis oppositis 3-5 partitis incisis, summis sessilibus, pedunculis elongatis bifloris, petalis obovatis. Willd. Sp. pl. 3. p. 705.

Geranium maculatum, perenne, retrorsum pubens: caulibus erectis, opposite diphyllis: foliis 3-5 partitis: pedunculis elongatis, bifloris: petalis obovalibus. Mich. Fl. Boreali-Am. vol. 2. p. 38.

SYNONYMA.

Geranium Noveboracense, Coelln Amœn. Acad. vol. 4. p. 522.

Geranium caule erecto herbaceo, foliis oppositis quinquepartitis incisis, summis sessilibus, petalis integerrimis rotundatis. *Cavan.* Diss.

Geranium batrachioides Americanum maculatum floribus obsolete cœruleis. Dillenius elth.

DESCRIPTIO UBERIOR.

Herba tota hirsuta. Radix gibbosa, horizontalis, perennis. Caules erecti sub-bipedales, furcati seu dichotomi, pilis deflexis. Folia profunde quinquepartita, undique pilosa, lobis irregulariter inciso-

dentatis; radicalia longè petiolata; caulinia nonnunquam sessilia. Stipulæ membranaceæ. Pedunculi elongati biflores. Flores magni purpureo-rosei petalis obovatis non emarginatis. Calices sparsè pilos margine ciliati et abruptè aristati. Capsulæ hirsutæ, pilis patentibus. Habitat in sylvis umbrosis, et sepibus; etiam inter segetes, et ad margines agrorum; florens Junio et Julio.

Barton's Fl. Phil. MS.

The generic term Geranium, is derived from the Greek word γέρανος, a crane, from the fancied resemblance of its permanent style, to a crane's bill. The old genus contained a very extensive assemblage of plants. L'Heritier divided it into three different genera, viz. *Erodium*, *Pelargonium*, and *Geranium*, the latter characterised by the marks, mentioned at the head of this article, under the generic character.

Of the North American species of the genus, the maculatum is much the most common. This extremely pretty plant is much more worthy of cultivation than many of the exotic species of the same genus, so universally nurtured in our green-houses. The root is perennial, irregularly gibbous, and horizontal; and commonly of the size represented in the plate. It is brownish, mottled with green externally, and greenish-white within, becoming brittle or friable upon siccation; and then easily pulverisable in the mortar. From the root arise generally one stem and from four to eight root-leaves, supported by petioles from eight to ten inches in length. The stem is erect, terete; and this, as well as its divisions and peduncles, is of a sage-green colour, and thickly beset with reflexed

hairs. At the height of six, eight, or ten inches from the ground, the stem becomes forked; and at the point of division is garnished by a pair of large leaves supported on petioles, less than half the length of those of the radical leaves. The leaves at the fork are commonly much the largest, and are frequently inverted from their upright position either by a reflexion of the petiole, or a convolution of it, as represented in the plate. Those situated on the upper part of the stem, are furnished either with short petioles, or are entirely sessile. The peduncles arise from the dichotomous divisions of the stem, and uniformly bear two flowers, on short pedicels. The first fork or division of the stem, is furnished with four lanceolate, ciliate, membranaceous stipules, of a salmon colour. The upper stipules are linear, but also ciliated and of the same colour. The calix consists of five oval-lanceolate, ribbed, cuspidated segments, plumously ciliated on their outermost margins, and membranaceous on the other edges—occasionally three of the segments are ciliated on either edge, and the other two have membranaceous margins. Petals five in number, obovate and without notches at the apex. Stamens always ten, having glands at the base, and oblong convex deciduous anthers of a purple colour. Germ egg-shaped—style the length of the stamens at first, but afterwards becoming elongated, and persistent—stigmas five. The capsule contains five seeds, which, when matured, are scattered by the elasticity of the awns arrayed along the permanent style. The plant is extremely common in many parts of the United States, having a very

extensive geographical range. It is abundant in the neighbourhood of this city, and I have found it equally common in Jersey, the counties of Lancaster and York, in Pennsylvania, and in the neighbourhood of Baltimore. But it will be found plentifully from Canada to the southern boundary of the United States. It inhabits copices, hedges, the borders of damp woods, and the skirts of fields, generally preferring low grounds, though I have seen it on high hills. Its common height is from twelve to eighteen inches: but in very favourable situations it grows to the stature of two and an half feet, and is then one of the most beautiful of our native plants.

MEDICAL PROPERTIES.

The medicinal virtues of Geranium maculatum, reside, exclusively, in the root, and these entitle the plant to be ranged under the head of Astringents, in the Materia Medica. After saying thus much, it may seem unnecessary to enter into a detail of the particular diseases in which it has been recommended. The encomiastic and sometimes ill founded accounts of the medical virtues of a plant, which may have become the particular object of the favour or partiality of an individual physician, too frequently savour of empiricism; and in fact the exaggerated reports of the specific powers of medicines have not only done much harm, but never fail to bring into actual disrepute, the subject which they were designed

to offer to favourable notice. To no one of our native plants is this remark more applicable, and of none more true, than the subject of this article. Not content with substantiating the claim which our native species of Geranium has to a rank in the Materia Medica, as a powerful astringent, those physicians and others who have been particularly led to the employment of it in the cure of diseases, have assigned to it specific powers, which it certainly does not possess. Having thus premised my opinion of the real and reputed virtues of this plant, I shall proceed to state the different diseases in which it has been recommended.

In the fourth volume of the Amœnitates Academicæ, Coelln first mentioned the medical virtues of this plant; and he there tells us, on the authority of Cadwallader Colden, that it was used in dysenteries. "Geranium Nov-eboracense (maculatum); decoctum "radicis hujus plantæ ad dysenteriam nostratibus in usu est.*" And Shoepf says: "Radix leniter adstringens, vulneraria habetur et ad Dy-"senteriam laudatur."

The practice of using a decoction of the Geranium in dysentery, is still very common among the inhabitants of our western mountains; and this is done upon a knowledge of its astringency, for it is in that part of our country that the plant is known familiarly by the name of Alum-root; and a decoction in milk was recommended by

* Specifica Canadensium, No. 30.

the late Professor Barton, in cholera infantum. Whether the practice of using the astringent decoction in dysentery, can ever be admissible, is, I think, extremely doubtful; and whether it has ever actually done good in that complaint, is not less problematical. It is not unlikely that in diarrhæa it may be useful: and this disease is not unfrequently called by the vulgar, dysentery. In all probability the powers ascribed to it of curing this last complaint, have been shewn by its exhibition in such cases of common diarrhœa as are cured by the use of astringents. Of its use in cholera infantum I know nothing, not having ever employed it in that complaint. But I am informed by Dr. Eberle, who is a native of, and has practised in, the county of Lancaster, that the common people of that county use it extensively in the treatment of diarrhæa and cholera infantum. And he tells me that he has himself used it in some cases of looseness of the bowels with as much efficacy as other astringents. The western Indians are said to esteem it as the most effectual of all their remedies for syphilis; and here too, probably, the mild local disease which we know can be cured by astringents, has been confounded under the name of the constitutional disease. An aqueous infusion of the root has been used as an injection for gonorrhœa, and probably with success. I have used it in some few cases last summer, and I must confess with as much success as is usual with astringents; though I ought not to conceal, that in those cases, (as in all that come under my care,) I used general depletion extensively, that is, by repeated purging with neutral salts. Dr. Barton hints that a saturated tincture, combined with white vitriol

might be advantageously administered in cases of gleet. Surely however, this practice does not promise any great advantage. The common means of managing those obstinate discharges, seem much more likely to be efficacious—and should they not prove so, there is little reasonable expectation of doing good by the plant in question.

Dr. Barton's suggestion that this plant is entitled to the attention of physicians in the treatment of nephritis, is not, perhaps, entitled to much weight. This suggestion was principally grounded on the supposed efficacy of Geranium Robertianum (Herb Robert) in that complaint.* Even admitting that this plant has performed all the effects attributed to it, it does not follow that the species under consideration would prove similarly beneficial; for the Geranium Robertianum, besides being an astringent, is obviously endued with other virtues,—it is powerfully diuretic.

It is said that Geranium maculatum has been collected in Kentucky, where it is called Crow-foot, for Tormentil (Tormentilla erecta) and vended in the shops of druggists there, for that article; whether fraudulently or from ignorance I know not, but most probably the latter, since the geranium bears no kind of resemblance

* In North Wales this plant has acquired celebrity, as a remedy for nephritic complaints. A handful of the dried leaves is recommended to be infused as tea, and a tea-cup full taken occasionally. Mr. Watt. Wm. Withering, Esq.

to the tormentil. The fact I here mention must rest on the authority whence I derived it.*

In apthous affections of the mouth, a decoction of the root of Crane's-bill, is a very useful and not unpleasant remedy. For this purpose I can confidently recommend it from my own experience, and the corresponding testimony of my friend Dr. Eberle, lately of Lancaster. He has informed me that in many cases he has used it with decided good effect. "I have frequently used a strong de- "coction of the root of the Geranium mac. in cynanche tonsilaris, "and sometimes with evident advantage. As a gargle, in uclers of "the tongue and fauces, I have found it highly useful.—In a chro- "nic and very obstinate case of apthaous ulceration of the mouth, "after various articles had been used, by other physicians and myself, "unsuccessfully, the patient was relieved by the use of gargles made "of the root of this plant."† The plant may be exhibited in tincture, decoction, infusion, in substance (powdered) and in extract. The dose is from two to four drachms of the tincture; from fifteen to twenty-five, or even thirty five, grains of the powder; from twelve to fifteen grains of the extract: and when given in decoction, about one ounce, or an ounce and a half, may be boiled with half a pint of water. Of this decoction, one or two table spoonfuls may be given at a time. Of the infusion, a proportionate quantity.

* Barton's Collections.

† Mem. by John Eberle, M. D.

TABLE XIII.

Fig. 1. Represents the lower portion of the plant.

2. The upper portion, cut asunder at the asterick ; a similar part belonged in the specimen figured, to each of the cut stems.

3. The calix, stamens, and pistil, as they appear when the petals have fallen.

4. A petal separated.

5. The germ, pistil, and stamens, as they appear in the full blown flower.

6. The column of capsules and persistent style. When the fruit is mature, each capsule spontaneously separates from the others, and by the elasticity of the columnar supporting part, scatters the seeds.

Fig. 2.

Fig. 2.

3. 4. 5.

Drawn from Nature by W.P.C. Barton

Tanner Pallance Kearny & Co Sc.

ANTHEMIS COTULA.

(WILD CAMMOMILE.)

May weed.

ANTHEMIS COTULA.

WILD CHAMOMILE. MAY-WEED.

Stinking Chamomile. May-flower. (In England) Mathen. Dog's Fennel.

ANTHEMIS COTULA.

Germ. Die stinkende Kamille, die Stinkkamille, Hundskamille, Hundsbloom, Hundsdill, Krötendill, Kuhdill, Hundsromey, Streichblume, Heilige Dille, Gänsekopf.

Dutch. Stinkende Kamille ; Paddebloem.

Dan. Koedild, Hundekameelblomst, Hundeurt, Gaasedild, Baldersbraa, Bakerblom.

Norw. Siurguld, Gaaseguld, Gaasedill.

Swed. Surkullor ; Hundkamiller.

W. Mannl. Surtuppor.

Upland. Surkullor.

Dalen. Hviteteja.

Skan. Ballensbro.

Engl. The Stinking Camomile, or May-weed ; the Dog's Fennel.

Welsh. Llygad yr ych.

Fren. La Camomile puante ;

vulg. la maroutte ; oil de vache.

Ital. Camomilla fetida, cotula fetida.

Span. Manzanilla fetida, cotula fetida.

Port. Macella fetida, cotula bastarda.

Russ. Solotucha (trava).

Pol. Psi rumien; Rumieniec smierdzacy.

Bohm. Psy rmen.

Hung. Eb kapor; Büdöske ar.

Lettonia. Sunnischi, Sirgu kummelis (i. e. horse-chamomile.)

Eston. Kannapersed; Kanna perse hein.

Hat einen starken, unangenehmen Geruch, sonst aber viel Aehnlichkeit mit der Ackerkamille. Sie ist officinell. — Die Kröten lieben sie, wie andere stinkende Gewächse, ungemein, daher sie auch Krötendill genannt wird. Den Bienen hingegen ist ihr Geruch unerträglich. Man soll auch die Flöhe damit vertreiben können. (Polyglot. Lex.)

Anthemis cotula, L. Sp. Plant. 1261. Amœn. Acad. 4. p. 522. Mat. Med. 530. Huds. 373. With. 738. ed. 5th. vol. 3. p. 910. Hull. 188. Relh. 323. Sibth. 259. Abbot. 186. Curt. Lond. Fasc. 5. t. 61. Raii Syn. 185. Bauh. Hist. v. 3. 120-36. Robson, 186. Fl. Dan. 1179. Eng. Bot. 1772. Lob. Abs. 447. 1, and *ic.* 1. 773. 2. Germ. ed. 757. 1. Park. 87. 9. H. ox. vi. 12. 8. Fuchs. 583. I. B. iii. a. 121. 1. Gars. 216. St. Hilaire. Germ. Plant. vol. 1. part 2. p. 409. Brunf. Herb. v. 1. 255. Germ. em. 757. Pet. H. Brit. t. 19. f. 11. Smith. Fl. Brit. vol. 2. p. 906. Gron. Virg. 127. Shœpf. Mat. Med. Am. p. 125. Willd. Sp. Pl. Tom. III. pars iii. p. 2181. Fl. Suec. 703; 767. Mat. Med. 190. Dalib. Paris. 263. Pall. it. 1. p. 46. Pollich. pal. n. 817. Blackw. t. 67. Hoffm. Germ. 303. Roth. Germ. I. 368. II. 354. Roy. Lugdb. 172. Hall. Helv. n. 104. Bauh. Pin. 135. Houttuyn. Lin. Pfl. Syst. 9. p. 509. Pers. Syn. Pl. pars. 2. p. 466. Suter. Fl. Helv. vol. 2. p. 195. Lam. ill. gen. t. 683. f. 3. Ait. Hort. Kew. ed. 2d.vol. 5. p. 107. Scopoli. Fl. Carn. n. 1092. Dod. Pempt. 258. Bege. Fl. Bost. p. 202. Pursh. Fl. Am. Sep. vol. 2. p. 562. sub nomine Anthemis arvensis. Bart. Prod. Fl Ph. p. 83. Purton's British Plants, vol. 2. p. 397. Smith. Compend. Fl. Brit. p. 126. Curt. Fl. Lon.

ANTHEMIS.

Gen. Plant. 1312.

Recept. Paleaceum. *Pappus* submarginatus. *Cal.* Hemisphæricus, squamis subæqualibus. Flosc. radii plures quam 5, oblongi. (Sm. Fl. Brit.)

Recept. Paleaceum: paleis planis, apice acuminatis, rigidis. *Pappus* nullus s. margo membranaceus. *Flores* radii plures quam 5. *Cal.* hemisphæricus, subæqualis. (Pursh. Fl. Am. Sep.)

Recept. Paleaceum. *Pappus* nullus. *Cal.* hemisphæricus. (Willd. Sp. Pl.)

Nat. Syst. Jussieu *Corymbiferæ.* Classis X. Ordo. III.

ANTHEMIS, L. * Chamæmelum, T. * Bupthalmum, T. * Cotula, T. * *Camomille.* Flores radiati, ligulis lanceolatis numerosis. Calix imbricatus subæqualis hemisphæricus. *Folia* sæpe multifida; flores sæpe in ramulis terminales; ligulæ albæ aut luteæ, raro nullæ. A Matricaria discrepat receptaculo paleaceo. Calix A. Arabicæ quasi bracteis obovallatus. Juss. Gen. Pl. p. 185.

Nat. Ord. Linnæi. *Compositæ radiatæ.* Adanson, *Compositæ.*

Classis, *Syngenesia.* Ord. *Polygamia Superflua,* Lin. Syst.

The general characters of Anthemis are, that it has a *calix* common, hemispherical, consisting of numerous linear subequal scales; *corolla* compound, radiate; florets in the disk hermaphrodite and tubular, those in the radius female, and more than five; the former are funnel-shaped, five toothed, erect, the latter ligulate, lanceolate, and sometimes three-toothed. In the hermaphrodite florets the *filaments* are five, capillary, very short, supporting cylindrical tubular *antheræ. Germen* oblong, *style* filiform, *stigmata* two, reflex; *seeds* solitary, receptacle chaffy, convex.

Ency.

ANTHEMIS Cotula, receptaculo conico, paleis setaceis, seminibus muticis, foliis bipinnatifidis glabriusculis.

Smith. Fl. Brit.

ANTHEMIS Cotula, receptaculis conicis, paleis setaceis, seminibus nudis, foliis bipinnatis foliolis subulatis tripartitis. Willd. Sp. Pl.

ANTHEMIS Cotula, recepticle conical, its scales bristle-shaped; seeds naked; leaves doubly pinnatifiid, somewhat smooth. Sm.

SYNONYMA.

CHAMÆMELUM fœtidum. Raii. Syst.

C. fœtidum, sive Cotula fœtida. Bauh. Pin.

C. foliis glabris, &c. Hall.

Cotula fœtida. Brumf. Herb.

Cotula alba. Dod. Pempt.

Anthemis Noveboracensis. Cœlln. Amœn. Acad.

Pharm. *Cotulæ fatidæ* Herba, Flores.

Qual. Fœtida, amara. *Inusitata, eximia.*

Vis: Anodyna, pellens, repellens.

Usus: Hysteria! Epilepsia, Hydrops, Scrophula, Asthma. Infus. Rheumatismus, contusiones. Shœpf. Mat. Med.

DESCRIPTIO UBERIOR.

Planta annua. Radix tortuosa. Caulis ramosissimus, erectus, foliosus, multiflorus, glaber.. Folia bipinnatifida, plana, incisa, læte viridia, vix pilosa. Calix pilosus, minus scariosus. Discus aureus, convexus. Flosculi radii albi, tridentati, patentes, noctu deflexi. Semina obovata, sulcata, ommino mutica, interdum tuberculato-scabra. Receptaculum cylindraceo-conicum; paleæ omnino setaceæ, flosculis breviores; florens Julio et Augusto. Sm. Fl. Brit.

Herba, et præcipue flores, ingrati odoris. Variat flore pleno. Dill.

The generic name Anthemis, is supposed to be derived from Ἀνθέω, *floreo*, having an abundance of flowers. It designates a family of plants of the Chamomile kind, all the species of which are strikingly alike in habit. The species now under consideration is a common weed found every where in the neighbourhood of habitations, and rather repulsive from its peculiar and disagreeable smell.

The whole plant is slightly covered with adpressed woolly hairs or down, perceptible to the naked eye, but very conspicuous under a lens. The root is annual, simple, or sometimes contorted, fibrous. Stalk from one to two feet high, irregularly angular, finely furrowed, or sometimes only striated, erect, and very

much branched down to the bottom. The leaves are alternate, sessile, flat, doubly pinnated; the mid-rib keeled underneath. Flower-stalks upright, finely grooved, naked, thickening towards the top. Calix common to all the florets, hemispherical, imbricated, hairy, scarious, or rough; the scales narrow, slightly margined, of a pale green colour. Flowers pure white, with the centre bright yellow. In favourable situations they are of the size represented in the plate, but not uncommonly somewhat smaller; yet I have occasionally seen them, in unmolested places, something larger. The disk is of a bright golden-yellow colour, consisting of numerous, tubular, hermaphrodite, five-toothed florets.

The ray florets are female, lanceolate, inclining to ovate, two-ribbed, one, two, or three toothed (more or less deeply) at the apex. They are reflexed from sunset till morning, but spreading horizontally during the day. They are pure white, slightly tinged with greenish-yellow at the base. The tubular part of the floret, as well as the germen, is garnished with transparent glands, visible without a glass, but more conspicuously apparent and beautiful under one. Stigma bifid, with the segments reflexed. Receptacle conical, or nearly cylindrical, surmounted by rigid, bristle-shaped paleæ or chaff. Seeds, obovate, bluntly four-cornered, sulcated, sometimes roughly tuberculated, and of a brownish colour. Found growing every where in wastes, near to habitations, among rubbish, and on dirty way sides, all along calcareous turnpike roads, where it

seems to delight, shooting up among the stones. It grows plentifully in the streets, along the gutters, and on the vacant lots of the suburbs of Philadelphia and Baltimore ; and every where through the streets of Germantown, Frankfort, Lancaster, and York, and I presume in other similar places in the United States. It ranges extensively over our states, and is universally known by the name of wild chamomile. It flowers from midsummer till late in the autumn ; and I have often seen it luxuriantly blooming in November and December, in the navy yard of this city.

This plant is very active, and is said by Curtis* to blister the skin of reapers and children in England, who gather it. It is there so common in corn-fields, as to diminish the crops occasionally. It is also said to be fond of soil well manured. This circumstance, together with the fact of its vesicating property, which our plant does not, I think, possess ; and also some discrepancies in the habit and structure of the plant, induced me to entertain doubts whether the Anthemis Cotula of Europe, and the plant designated by that name in this country, were identical. Not being however so fully satisfied as to make up my mind on the subject, I leave it for the future investigation and scrutiny of botanists to determine. Dillenius describes a double-flowered variety, which Withering, Smith, and others inform us is to be found in different parts of England. I

* Flora Londinensis.

have never seen the American plant even approximating to this duplication of its flowers. Pursh has most surprisingly mistaken this plant for Anthemis arvensis, the figure of which in English botany, he refers to. I cannot conceive how he has fallen into this palpable error; for the arvensis is strikingly unlike the A. Cotula.

"Toads are said to be fond of this plant. It is very ungrateful and "displeasing to bees. Goats and sheep are not fond of it. Horses, "cows, and swine refuse it."*

MEDICAL PROPERTIES.

The medical virtues of May-weed have long been spoken of, but still have been imperfectly known. Few of our common plants have been more extensively employed in domestic medicine, and by empirics, than this, and yet scarcely is a physician to be met with who speaks decidedly of its virtues. Extensive enquiries have led me to a knowledge of the fact of its common, nay daily use, by the vulgar; and induced me to make some trials of it in cases in which it was reputed useful. It may be first proper to

* Lin. Withering, and Purton.

state the general reputation of this plant, as a medicine in certain diseases, and then mention the result of my own experience with it. Shœpf who speaks particularly of it, describes it as a fetid bitter, being anodyne, and repellant; and says that it is used in hysteria, epilepsy, dropsy, scrofula, and asthma; and also that an infusion is useful in contusions and for rheumatism. Here we evidently see that at the period when Shœpf wrote his work (in 1787) great powers were imputed to the plant, and that it was extensively and variously employed. I have reason, from the observation and enquiries I have made, to believe that this undue reputation is still attached by the vulgar of this country to the plant in question, and that it is, consequently, still much resorted to for medical relief. Decoctions of it are said to be used in cases of hysteric suffocation, and in common cases of what are called hysteric fits, as a bath or fomentation. In the same form it has also been applied to hæmorrhoidal swellings and pains, and to all sorts of contusions. It appears to be more generally employed externally, than by inward administration. Yet both decoctions and infusions are not unfrequently given internally, in fevers and colds. The notion that it can cure scrofula, is not confined to the work of Dr. Shoepf: Curtis quotes Mr. Ray as mentioning "that a decoction of the herb "has by some (in England,) been given internally, with success, in "scrofulous cases."* It is not, I presume, necessary for me to say, that I give no kind of credit to the reputed powers of this plant

* Flora Londinensis.

in curing scrofula; and the accounts above mentioned, are given with no other view than to communicate all I have been able to learn relative to it.

William Withering, Esq. editor of the 5th edition of his father's work on British plants, says, "the whole plant yields a strong aro-"matic odour."* This seems remarkable, because the British plant is represented as being extremely fetid. That of the United States differs some little, though perhaps not specifically, from the foreign vegetable, and is certainly not fetid, though possessed of a peculiar, and, to most people, a disagreeable odour. The smell has nothing aromatic in it. I have heard that the flowers (in which the aroma resides, if there be any in the plant) have been collected, dried, and mixed with the common chamomile of the shops, for sale.

From the experience I have had with this plant, I am induced to believe, that it can be made useful as a bitter only; and it is indeed a strong and active bitter. Like some other articles of this class, as the common chamomile, a strong decoction, given in the dose of a tea-cup full, will produce copious vomiting and sweating. This circumstance induced me to use it as an assistant operative drink, after the administration of an emetic. And in this way I have found it extremely beneficial, uniformly encouraging

* Vol. 3. p. 910.

and promoting the action of an emetic; and obviously in a more powerful manner than warm water operates.

Its popular use, and reputed efficacy in rheumatism, undoubtedly is owing to its sudorific effects, which are very considerable. A weak infusion taken to a moderate extent, nauseates the stomach, and produces a determination to the skin.

TABLE XIV.

Fig. 1. The upper portion of the Anthemis Cotula.

2 and 3. Parts of a floret of the ray.

4. A floret of the disk.

5. The bifid stigma.

Drawn from Nature by W.P.C.Barton

Tanner Vallance Kearny & Co. Sc.

GAULTHERIA PROCUMBENS.

(Mountain Tea.)

GAULTHERIA PROCUMBENS.

MOUNTAIN-TEA. TEA-BERRY.

Trailing Gaultheria. Partridge-berry. Winter-green. Tea-berries. Berried-tea. Grouse-berry. Deer-berries. Ground-holly. Ground-ivy. Spice-berry.

Germ. Niederliegende Gaultheria.

Swedish. Thebuske.

Eng. The trailing Gaultheria.

Canada. (By the Indians) Pollom.

Eine kleine Staude, mit rothen Beeren; In Canada trinket man die Blätter wie Thee, daher der Schwedische Name Thebuske. Kalm hat sie Gaultheria genannt, nach einem Französischen Arzt in Canada, namens Gualthier, oder Gaulthier, dessen Kenntnisse in der Botanick errühmt.

(Polyglot. Lex.)

Gaultheria procumbens. Kalm. Amœn. Acad. 3. p. 14. Duham. Arb. 1. p. 286. t. 113. Mill. Dict. Willd. Arb. 125. Tournef. inst. 608. Cold. Noveb. 98. Houttuyn Lin. Pfl. Syst. 3. p. 573. Lin. Sp. Pl. 565. Shœpf. Mat. Med. p. 67. Willd. Sp. Pl. Tom. II. pars I. p. 616. Bot. Repos. Pursh. Fl. Am. Sep. vol. 1. p. 283. Muhl. Cat. p. 44. Bart. Prod. Fl. Ph. p. 49. Big. Florula Bost. p. 101. Mich. Fl. Boreali-Am. vol. 1. p. 249. Pers. Syn. Pl. vol. 1. p. 482. Lin. Gen. 220. Schreb. 295. Ait. Hort. Kew. 2d. ed. vol. 3. p. 56. Mart. Mill. Dict. v. 2. Lamark. Illust. t. 367. Gært. t. 63. And. Repos. t. 116.

GAULTHERIA. (Kalm.)

Gen. Plant. ed. Schreb. n. 749.

Cal. exterior 2-phyllus; interior 5-fidus. *Cor.* ovata. *Nectarium* mucronibus 10. *Caps.* 5-locularis, vestita calyce interiore baccata. (Willd. Sp. Pl.)

Cal. 5-fidus, basi bibracteatus. *Cor.* ovata. *Caps.* 5-locularis, vestita calyce baccato. (Pursh. Fl. Am. Sep.)

Nat. Syst. Juss. *Ericæ.* Classis X. Ordo. III.

Gaultheria, Kalm. L. * *Vitis idea*, T. * Calix campanulatus 5-fidus, extus 2-squamosus. Corolla ovata, limbo sub-5-fido revoluto. Stamina 10, imæ corollæ inserta, filamentis hirsutis, antheris apice 2-cornibus; squamulæ 10, filamentis interjectæ minimæ, germen cingentes. Capsula 5-locularis 5-valvis, tecta calice baccato, suprà pervio. *Suffrutex humillimus; folia alterna aut fasciculata; flores axillares subsolitarii.* Juss. Gen. Plant. p. 161.

Nat. Ord. Lin. *Bicornes.*

Classis, *Decandria.* Ord. *Monogynia*, Lin. Syst.

Gen. Ch. *Cal.* Perianth inferior, permanent, of one leaf, five-cleft, bell-shaped; its segments half-ovate. *Cor.* of one petal, ovate, slightly five-cleft; limb small, revolute Nectary of ten awl-shaped, erect, very short bodies, surrounding the germen between the stamens. *Stam.* Filaments ten, awl-shaped, incurved, shorter than the corolla, inserted into the receptacle; anthers with two cloven horns. *Pist.* Germen superior, roundish, depressed; style cylindrical, the length of the corolla; stigma obtuse. *Peric.* Capsule roundish, obtusely pentagonal, depressed, of five cells and five valves, opening at the top in five places, clothed all round with the perianth, become a roundish, coloured berry, open at the summit. *Seeds* numerous, nearly ovate, angular, bony.

Ess. Ch. Calyx inferior, five-cleft, permanent. Corolla ovate. Nectary of ten awl-shaped points. Capsule of five cells, clothed with the pulpy calyx. Ency.

Gaultheria procumbens, foliis oblongo-obovatis mucronatis dentatis confertis, caule procumbente. Willd. Sp. Pl.

Gaultheria procumbens, caule procumbente, ramis erectis, inferne nudis, superne confertim foliosis, obovatis basi acutis tenuissime ciliato-dentatis, floribus paucis terminalibus nutantibus. Willd. in Pursh. Fl. Sep. Am.

SYNONYMA.

Vitis Idæa Canadensis, pyrolæ folio. Tournef.

Anonyma pedunculis arcuatis. Cold. Noveb.

Pharm. Gaultheriæ folia.

Qual. Fol. amaro-aromatica; Fr. sapore et odore dulci, grato.

Usus. Foliorum infusum theiforme. Shœpf. Mat. Med.

DESCRIPTIO UBERIOR.

Fructiculus spithamæus, sempervirens. Radix repens. Folia ovalia, vel obovata, glabra, coriacea caulem terminantia; serraturis aristatis. Flores plerumque solitarii, axillares, pedunculis arcuatis nutantibus. Calix basi bi-bracteatus. Corolla alba. Fructus ex calice facta; baccæformis sub-rotunda, coccinea, esculenta. Planta in montibus et montosis gaudens. Habitat à Canada ad Floridam usque, solo arido, sterili, arenoso. Floret Junio. Bart. Fl. Ph. MS.

This pretty little evergreen shrubby plant, is very generally known by the country people, among whom it is much esteemed for its agreeable aromatic flavour, and extensively used, in the way I shall presently mention.

It belongs to a small genus dedicated by Kalm to D. D. Gautier, a physician formerly of Canada, and an excellent botanist. How the letters *l* and *h* have crept into the word, it is not easy to learn,

since the real name of the physician whom it was designed to honour, was Gautier, unless by latinizing the French *Gaulier*, which is *Gualtherius*. In the Am. Acad. there is a paper by L. J. Chenon, entitled *Nova Plantarum Genera*, in which the plant now under consideration is described, and it is there said that it is called after Dr. Gaulthier. As the genus is now universally spelled *Gaultheria*, it is not expedient to alter its orthography: but as in Pursh's plate of Gaultheria Shallon, in Shoepf's Materia Medica, and in some other botanical works, the different orthography Gualtheria has been used, it is proper to notice it in this place. The specific appellation is not very appropriate; for though the stems frequently are bent in the manner of one or two represented in the plate, thereby having the appearance, among dead leaves and loom, of being procumbent, yet the upright position of the stem, as shewn in the other examples of the figure, is equally common.

The root is creeping, horizontal, and very long, sending up at short distances, one, and sometimes two, stems. The stem seldom exceeds a span in height; is round, of a reddish colour, and terminated by a few evergreen oval, smooth, shining, coriaceous leaves, paler underneath, and somewhat spreading. They have a few acuminated or aristated serratures, and short red petioles. They vary in size, as represented in the drawing. The flowers are generally solitary, seldom exceeding 3 or 5 on a stem, and supported by curved drooping peduncles, of a yellowish-green hue. Calix five-toothed, furnished with two bracts at the base, which have by

some been considered as an exterior calix. The corolla is ovate, monopetalous and terminated at its apex by five, toothed indentures, which are seldom open or spreading in shady woods, though this sometimes happens in sunny and exposed situations. The pistil is short, simple above; dilated into a flat button at bottom; and surrounded by ten citiated or plumous stamens. Both filaments and anthers are of a delicate rose colour. The flowers are succeeded by small capsules contained in a roundish, berry-form, fleshy substance, of a carmine colour, produced by an enlargement of the calix. It possesses an aromatic peculiar flavour, and is extremely grateful to the taste.

This plant is found throughout the United States in shady, hilly woods, delighting in a sandy or loose soil. It is particularly abundant in the pine barrens of New Jersey, and frequent on the hilly woods bordering the Wissahickon creek, near this city. The time of flowering is in June and July. It is brought to the Jersey market of this city in the months of November and December, tied up in little bunches, which are sold for a cent each; and from the avidity with which they are bought up I infer that the plant is in general use among the common people, it being such only who buy it.

Gaultheria procumbens is a hardy plant, and is said to be easily cultivated in England,* by placing it in a light sandy loam, with a mix-

* It was cultivated in that country as early as 1762, by Ph. Miller.

ture of peat earth; and that it flowers and bears fruit in that country most part of the year.

An interesting fact has been mentioned to me by Joseph Ball, Esq. of this city, which merits further enquiry. It is, that the deer are extremely fond of the berries of this plant, and that they eagerly devour them wherever they are found. He further informs me, that it is a common opinion among the country people, to whom this fact is well known, that the peculiar and delicate flavour of venison is owing to this favourite food of the animal. Upon adverting to the geographical range of the Gaultheria, I find that it is one of the commonest plants in those sections of our country where the deer are found; and one of the common names of the plant throughout the United States, Deer-berry, is sufficient evidence of the fact, that it is a favourite article of food for that animal. It might not be uninteresting to try the effect of these berries, as food, upon sheep, or other animals prepared in their young state for our tables. It is now, I believe, not doubted, that the peculiar delicacy of the flesh of the Anas vallisneria (of Wilson), or the common canvass-back duck, is owing to its feeding upon the Vallisneria Americana (or channel-weed); for when so situated as to be deprived of the opportunity of feeding on this article, the flesh loses that delicious flavour for which it is otherwise so remarkable.

MEDICAL PROPERTIES.

Mountain-tea is one of the most favourite indigenous medicinal articles among the peasantry of those parts of our country where it is abundant. In common with many popular remedies, its virtues are frequently overrated, and its use injudiciously resorted to. This circumstance in other vegetables as well as in this, arises from an ignorance of the real powers or effects of the plant, which is supposed by vague rumours to be endued with virtues to which it has no claim. Hence appears the usefulness of an exact appreciation of the qualities of reputed medicinal plants. The name, mountain-tea implies, that the plant under notice is used in infusion like common tea; and actual inquiries through various sections of our country have convinced me, that it is extensively employed as a medicinal tea, and with decided good effect. The whole plant is endued with an aromatic flavour, combined with some astringency. It is a stimulant and anodyne. Shoepf says that the leaves have an aromatic bitterness; but this bitterness, if any, is very inconsiderable. The astringency of the hot infusion is certainly not greater than that of strong green tea. I have heard many vague accounts of the efficacy of the infusion as a palliative in asthma; but though they con-

vinced me that it was frequently employed in this complaint, they never appeared sufficiently well founded to warrant much attention. Dr. Barton seemed to think that this plant was one of the principal articles in the materia medica of some of our Indian tribes. But it is not known for what purpose they use it, nor what virtues they attribute to it. The professor speaks of having used a strong infusion of the plant, but does not say particularly what was his success with it. The country people are in the constant habit of taking strong infusions of this tea, after great fatigue and undue exposure to heat or cold; and the relief they find from it under these circumstances, arises doubtless from its stimulating and anodyne property. As it is a very grateful beverage, though not very active in its effects on the system, it will no doubt always prove a useful medicinal tea, when its use is limited to those cases of depression of the system, from the fatigue of long journies, labour, or any other cause, in which stimulating and refreshing beverages may be advantageously employed. But as I have known it to be given in the commencement of violent inflammatory fevers, where the increased action of the system rendered it improper and even hurtful, it may be prudent to caution those who are partial to the use of the plant, against a practice capable of so much injury.

ŒCONOMICAL USE.

The berries of this plant are, as has been already mentioned, exceedingly aromatic and grateful to the taste. Joseph Ball, Esq. has informed me that it is a common practice in Jersey to infuse them in brandy or spirit, for the purpose of making a beverage which is taken in small quantities in the same way as common bitters. The same gentleman has also informed me, that during the American revolution, when China tea was scarce, or not procurable, it was a common practice to make a tea of the recent or dried leaves of the Gaultheria, and after being sweetened with sugar and softened with milk or cream, it was drank by many families at breakfast and supper, in lieu of common tea or coffee. He says also that it is at this time frequently used by the country people in Jersey, in the manner just mentioned.

TABLE XV.

Fig. 1. Represents the Gaultheria procumbens of its natural size, and in the common manner of its growth from a long creeping root.

2. The germ, pistil, and stamens aggregated in their common form.

3. A stamen.

4. The pistil.

5. The fleshy, berry-like fruit.

Fig: 1

Fig: 2

Fig: 3

Fig: 4

Fig: 5

Fig: 6

Fig: 7

Fig: 8

Drawn from Nature by W. Prickett

Tanner Vadance Kearny & Co Sc.

LOBELIA INFLATA.

Wild Tobacco.

LOBELIA INFLATA.

WILD TOBACCO. INDIAN TOBACCO.

Emetic weed. Bladder-podded Lobelia. Eye-bright.

Aufgeblasene Lobelie. Germ. (Willd.)

LOBELIA inflata, L. Hort. Ups. 276. Act. Ups. 1741. p. 23. t. 1. Gron. Virg. 134. Mill. Dict. n. 5. Hort. Cliff. 500. Roy. Lugdb. 528. Houttuyn Lin. Pfl. Syst. 10 p. 69. Willd. Sp. Pl. 1. p. 946. Mich. Fl. Boreali-Am. vol. 2. p. 152. Muhl. Cat. p. 23. Big. Florul. Bost. p. 55. Thatch. Disp. 2d ed. p. 258. Bart. Prodr. Fl. Ph. p. 30. Shœpf. Mat. Med. 128. Barton's Collections, part 1. p 37, 58. Pers. Syn. Pl. vol. 2. 213. Elliot. Sketch. Georg. &c. p. 266. Ait. Hort. Kew. ed. 2. vol. 1. p. 359. Coxe. Disp. ed. 3d. p. 401.

LOBELIA.

Gen. Plant. 1363.

Cal. 5-fidus. *Cor.* 1-petala, irregularis, sæpiùs fissa. *Caps.* infera, 2-3-locularis.

Nat. Fam. Juss. *Lobeliaceæ*. (Ann. du Mus.)

Gen. Ch. *Cal.* Perianth of one leaf, surrounding the germen, in five deep, nearly equal, withering segments; the two superior ones most directed upwards. *Cor.* of one petal, irregular, slightly ringent; tube cylindrical, longer than the calix, divided lengthwise at the upper side; limb in five deep lanceolate segments, of which the two uppermost are smallest, most reflexed, and most deeply separated, constituting the upper lip; the three lowermost more spreading, and generally

largest. *Stam.* Filaments five, awl-shaped, the length of the tube of the corolla, united upwards; anthers united into an oblong, somewhat oblique and curved, cylinder, separating into five parts at the base. *Pist.* Germen more than half inferior, pointed; style cylindrical, the length of the stamens; stigma obtuse, hispid. *Peric.* Capsule ovate, or roundish, of two or three cells, and two or three valves, bursting at the top, encompassed by the calix; the partitions contrary to the valves. *Seeds* numerous, minute, smooth. *Receptacle* conical.

Ess. Ch. Calix in five segments, crowning the germen. Corolla of one petal, irregular Anthers cohering, incurved. Capsule half inferior, of two or three cells. Ency.

LOBELIA inflata caule erecto, foliis ovatis subserratis pedunclo longioribus capsulis inflatis.
Willd. Sp. Pl.

LOBELIA inflata, erecta, ramosa, hirsutissima; foliis ovatis serratis, racemis foliosis, capsulis inflatis.
Pursh. Fl. Am.

Pharm. *Lobeliæ inflatæ* Herba, folia, capsulæ, Semina.
Qual: Lactescens, acris, nauseosa.
Vis: Emetica drastica.

DESCRIPTIO UBERIOR.

Planta biennis, pedalis et ultra. Radix quasi fibrosa; albida, acris et gustu nauseosa. Herba lactescens, acris. Caulis semper solitarius, erectus ramosus, foliosus, obsoletè angulatus, pubescens et interdum hirsutus. Pubescentia versus apicem ramorum, sub-nulla. Folia sparsa, seu alterna, ovalia, sessilia, subamplexicaulia, denticulato-serrata. Racemi terminales multiflori. Flores brevius pedicellati. Corolla cœrulea, internè sub-violacea. Calicis foliola subulata, longitudine corollæ. Semina numerosissima minuta, in capsulis vesiculato-inflatis contenta. Habitat in arvis presertim requietis; et ad vias, solo lutoso; florens Augusto et ad finem Octobris.
Bart. Fl. Ph. MS.

FATHER PLUMIER dedicated a genus of plants to Mathias de Lobel, or de L'Obel, author of a history of plants in 1576. The plant to which he originally applied the name of Lobelia, is now the

Scævola of Linnæus. When this botanist was convinced by Jacquin, that under the name of Lobelia, a vast number of plants generically distinct from the original plant, were confounded with it, and that these plants were better known than the true Lobelia, by that name; he judged it proper to correct the error by retaining this name for them, and giving a new one to the genus of Plumier. This is the origin of the term Lobelia for the genus as it now stands.

The Lobelia inflata is a biennial inelegant plant, about one foot, and from that to two feet high. The root is fibrous, yellowish-white, of an acrid taste, resembling that of tobacco. Stem upright, always solitary, angular, leafy, very pubescent, sometimes hirsute, and very much branched about mid way. Branches axillary, shorter than the stem, which rises for six or ten inches above the top of the highest branches, as represented by fig. 2. The leaves are irregularly scattered and alternate, sometimes crowded, oval, generally sessile, with the margins unequally indented with tooth-like serratures. The flowers are numerous, situated on terminal, leafy racemes, and supported on short axillary peduncles. The corolla is monopetalous and labiate; the lower lip three, and the upper two-toothed, is of a pale blue colour externally, and delicate violet within. The calix leaves are awl-shaped, and the length of the corolla. Seeds numerous, very small, and contained in egg-shaped inflated capsules, which have given rise to the specific appellation of the

plant. It is extremely common throughout the United States, growing on the way sides, in clayey or sterile soils; in neglected fields; and not unfrequently in moist grounds, and on the margins of ditches and field-drains. It is found in every road running from the city of Philadelphia to the neighbouring country, and is particularly abundant about Darby, and in the roads running through Belmont woods. It commences flowering in the last days of July, and continues in bloom till the end of October, and even as late as the first week of November. On the eighth day of last November, whilst travelling from Washington to Baltimore, I observed many specimens in full bloom along the road sides, and I subsequently saw a few flowering individuals on the 16th of November, in the roads through Belmont woods.

The Lobelia inflata is supposed by some to be an annual; by others a biennial; and Mr. Elliot, in his Southern Flora, says it is a perennial plant. Linnæus, Willdenow, Pursh, and other foreign botanists, have set it down in their books as an annual. I have always considered it a biennial, and have therefore so called it at the head of this chapter.

This plant has been accused in New England and elsewhere of producing the *slavers* in horses. It seems to be a matter of considerable importance to the farmers, to ascertain the real plant which thus affects their horses, if indeed it be any one particular plant. I

am aware that the same effect on these animals, has been ascribed to the Euphorbia hypericifolia (not E. maculata, which is a small procumbent or adpressed plant, and does not grow in cultivated grounds)—to the Hypericum perfoliatum, or common St. John's wort, and other plants. The Indian tobacco is more likely, from its sensible properties, to produce the disease mentioned, than either of the other vegetables.

MEDICAL PROPERTIES.

Lobelia inflata is decidedly one of the most active of our native vegetables. It might perhaps be said with truth, that the United States do not yield a plant of more powerful and unequivocal operation on the human system. And since poisons are generally, under judicious use, good medicines, the Indian tobacco seems to have an undoubted claim to a place in the Materia Medica. It is possessed of an emetic, sudorific, and powerful expectorant effect; but is chiefly remarkable for the first of these operations on the system. When given with a view to empty the stomach, it operates vehemently and speedily; producing, however, great relaxation, debility, and perspiration. Like other active emetics, it sometimes

operates on the bowels; but its cathartic effect is seldom observable unconnected with its emetic operation. I have not, in various trials with the plant, found it in any instance to affect the alimentary canal, as a primary seat of its operation; yet it is said by some that large doses operate in this way, without producing emesis. It does not appear to be possessed of any particular diuretic property, as was supposed by the late Professor Barton, would be found to be the case.

The first notice I can find in print, of the medicinal virtues of Indian tobacco, is simply a brief remark by Shoepf, that the "root is astringent, and used in opthalmia." He seems to have had little knowledge on the subject, and from the manner in which the plant is mentioned by him, it may reasonably be suspected that a vague rumour only of its medical properties had reached him. The next accounts we have of it as a medicine, are by the Rev. D. Cutler, and the late Professor Barton. The latter does not speak from experience, but remarks that it has been found useful in leucorrhœa; and that it will probably be found diuretic. He is altogether silent respecting its emetic power, though he seems to have suspected that this was the species of Lobelia called in New-England Emetic-weed. Since the accounts of these gentlemen were published, the Lobelia has gained admittance into our dispensatories, and Dr. Thatcher has given a long and satisfactory account of its virtues.

Every portion of this species of Lobelia is endued with the same acrid, pungent, and finally, nauseating taste. On chewing the root, the leaves, the stem, or one of the capsules, the first impression on the palate is not very decided: but on continuing the chewing, a sense of heat or biting is perceived in the back part of the tongue, and in the fauces. At this time the taste of the plant is similar to that of tobacco, seneka, or tartar-emetic; but if the mastication be persevered in, slight giddiness and increase of saliva come on; and if the quantity of the article in the mouth be sufficient, and be swallowed, nausea and excessive vomiting supervene, succeeded by great relaxation of the muscles, perspiration, and prostration of strength. One or two capsules, in the recent state, will produce full vomiting in most persons. From this account, which is faithfully given from the relations of those who have taken the Lobelia by my directions, as well as in part from my own feelings, it is evident that it is very stimulating to the mouth and first passages. This, together with its subsequent effects when taken extensively, would indicate that it is considerably narcotic. It is manifest also from these effects, that the plant is sufficiently deleterious to create dangerous consequences to the system, if administered without great caution. Not only horses and cattle have been supposed to be killed by eating it, but a remarkable instance of its deleterious effects on the system, is related in the report of a trial for murder of a notorious empiric in Massachusetts, who used this Lobelia to a pernicious extent as a nostrum. This daring and ignorant man is said to have "usually prescribed it, and

frequently with impunity, in the dose of a common tea-spoonful of the powdered seeds or leaves, and often repeated.* If the medicine

* William Rawle Esq. has put into my hands the report of this trial; and it may not be without a useful tendency to insert it here. In a medical and civil point of view it is equally interesting:

" COMMONWEALTH *versus* SAMUEL THOMPSON.

" At the beginning of this term (Nov. 1809), the prisoner Thompson was indicted for the wilful murder of Ezra Lovett, jun. by giving him a poison called Lobelia on the ninth day of January last, of which he died on the next day. On the twentieth of December, at an adjournment of this term, the prisoner was tried for this offence, before the chief justice, and the judges Sewall and Parker.

" On the trial it appeared in evidence, that the prisoner, some time in the preceding December, came into Beverly, where the deceased then lived; announced himself as a physician; and professed an ability to cure all fevers, whether black, grey, green, or yellow: declaring that the country was much imposed upon by physicians, who were all wrong if he was right. He possessed several drugs, which he used as medicines, and to which he gave singular names. One he called *coffee;* another *well-my-gristle;* and a third *ram-cats*. He had several patients in Beverly and in Salem, previous to Monday the second of January, when the deceased, having been for several days confined to his house by a cold, requested that the prisoner might be sent for as a physician.

" He accordingly came, and ordered a large fire to be kindled to heat the room. He then placed the feet of the deceased, with his shoes off, on a stove of hot coals, and wrapped him in a thick blanket, covering his head. In this situation he gave him a powder in water, which immediately puked him. Three minutes after he repeated the dose, which in about two minutes operated violently. He again repeated the dose, which in a short time operated with more violence. These doses were all given within

does not puke or evacuate powerfully, it frequently destroys the patient, and sometimes in five or six hours."* The testimony of

the space of half an hour, the patient in the mean time drinking copiously of a warm decoction, called by the prisoner his *coffee*. The deceased, after puking, in which he brought up phlegm, but no food, was ordered to a warm bed, where he lay in a profuse sweat all night. Tuesday morning the deceased left his bed, and appeared to be comfortable, complaining only of debility: and in the afternoon he was visited by the prisoner, who administered two more of his emetic powders in succession, which puked the deceased, who, during the operation, drank of the prisoner's *coffee*, and complained of much distress. On Wednesday morning the prisoner came, and after causing the face and hands of the deceased to be washed with rum, ordered him to walk in the air, which he did for about fifteen minutes. In the afternoon the prisoner gave him two more of his emetic powders, with draughts of his *coffee*. On Thursday the deceased appeared to be comfortable, but complained of great debility. In the afternoon the prisoner caused him to be again sweated, by placing him with another patient, over an iron pan with vinegar heated by hot stones put into the vinegar, covering them at the same time with blankets. On Friday and Saturday the prisoner did not visit the deceased, who appeared to be comfortable, although complaining of increased debility. On Sunday morning, the debility increasing, the prisoner was sent for, and came in the afternoon, when he administered another of his emetic powders with his *coffee*, which puked the deceased, causing him much distress. On Monday he appeared comfortable, but with increasing weakness, until the evening; when the prisoner visited him, and administered another of his emetic powders, and in about twenty minutes repeated the dose. This last dose did not operate. The prisoner then administered pearl-ash mixed with water, and afterwards repeated his emetic potions. The deceased appeared

* Thatcher's Disp. 3d ed. p. 402.

Dr. Drury of Marblehead, and the Rev. Dr. Cutler, have brought the Indian tobacco into notice, for the cure and relief of asthma.* In-

to be in great distress, and said he was dying. The prisoner then asked him how far the medicine had got down. The deceased, laying his hand on his breast, answered *here:* on which the prisoner observed that the medicine would soon get down, and unscrew his navel: meaning, as was supposed by the hearers, that it would operate as a cathartic. Between nine and ten o'clock in the evening, the deceased lost his reason, and was seized with convulsion fits; two men being required to hold him in bed. After he was thus seized with convulsions, the prisoner got down his throat one or two doses more of his emetic powders; and remarked to the father of the deceased, that his son had got the *hyps* like the devil, but that his medicines would fetch him down; meaning, as the witness understood, that it would compose him. The next morning the regular physicians of the town were sent for, but the patient was so completely exhausted, that no relief could be given. The convulsions and the loss of reason continued, with some intervals, until Tuesday evening, when the deceased expired.

"From the evidence it appeared that the *coffee* administered was a decoction of marsh-rosemary, mixed with the bark of bayberry bush, which was not supposed to have injured the deceased. But the powder which the prisoner said he chiefly relied upon in his practice, and which was the emetic so often administered by him to the deceased, was the pulverized plant, trivially called Indian tobacco. A Dr. French, of Salisbury, testified that this plant, with this name, was well known in his part of the country, where it was indigenous, for its emetic qualities; and that it was gathered and preserved by some families, to be used as an emetic, for which the roots, as well as the stalks and leaves, were administered; and that four grains of the powder were a powerful puke. But a more minute description of this plant was given by the Rev.

* For a detailed account of their cases the reader is referred to Thatcher's Dispensatory.

duced by their accounts, and the obvious expectorant effects of the plant, I administered it to a domestic in my family, who was dis-

Dr. Cutler. He testified that it was the Lobelia inflata of Linnæus :* that many years ago, on a botanical ramble, he discovered it growing in a field not far from his house in Hamilton: that, not having Linnæus then in his possession, he supposed it to be a non-descript species of the Lobelia: that by chewing a leaf of it, be was puked two or three times: that he afterwards repeated the experiment with the same effect: that he enquired of his neighbour, on whose ground the plant was found, for its trivial name. He did not know of any; but was apprized of its emetic quality, and informed the doctor that the chewing of one of the capsules operated as an emetic, and that the chewing more would prove cathartic. In a paper soon after communicated by the doctor to the American Academy, he mentioned the plant, with the name of the *lobelia medica.* He did not know of its being applied to any medical use until the last September, when, being severely afflicted with the asthma, Dr. Drury of Marblehead informed him that a tincture of it had been found beneficial in asthmatic complaints. Dr. C. then made for himself a tincture, by filling a common porter bottle with the plant, pouring upon it as much spirit as the bottle would hold, and keeping the bottle in a sand heat for three or four days. Of this tincture he took a table spoonful, which produced no nausea, and had a slight pungent taste. In ten minutes after he repeated the potion, which produced some nausea, and appeared to stimulate the whole internal surface of the stomach. In ten minutes he again repeated the potion, which puked him two or three times, and excited in his extremities a strong sensation like irritation: but he was relieved from a paroxysm of the asthma, which had not since returned. He has since mentioned this tincture to some physicians, and has understood from them, that some patients have been violently puked by a tea-spoonful of it: but whether this difference of effect arose

"* Lobelia. Class Pentandria. Order Monogynia. Capsule 2 or 3 celled: corol. irregular, cloven; antheræ united: stigma simple. Species. Inflata: stem erect; leaves ovate, slightly serrate, longer than the peduncle: capsules inflated. Turt. Lin. vol. 4. pp. 259. 330."

tressingly affected with spasmodic asthma. She is a female of narrow and depressed thorax; and for years past has been subject to

from the state of the patients, or from the manner of preparing the tincture, he did not know.

" The Solicitor General also stated that, before the deceased had applied to the prisoner, the latter had administered the like medicines with those given to the deceased, to several of his patients, who had died under his hands; and to prove this statement he called several witnesses, of whom but one appeared. He, on the contrary, testified that he had been the prisoner's patient for an oppression at his stomach—that he took his emetic powders several times in three or four days, and was relieved from his complaint, which had not since returned. And there was no evidence in the cause, that the prisoner, in the course of his very novel practice, had experienced any other fatal accideut among his patients.

" The defence stated by the prisoner's counsel was, that he had for several years, and in different places, pursued his practice with much success; and that the death of the deceased was unexpected, and could not be imputed to him as a crime. But as the court were satisfied, that the evidence produced on the part of the commonwealth did not support the indictment, the prisoner was not put on his defence.

" The Chief Justice charged the jury: and the substance of his direction, and of several observations, which fell from the court during the trial, are for greater convenience here thrown together.

" As the testimony of the witnesses was not contradicted, nor their credit impeached, that testimony might be considered as containing the necessary facts, on which the issue must be found.

" That the deceased lost his life by the unskilful treatment of the prisoner, did not seem to admit of any reasonable doubt: but of this point the jury were to judge. Before the Monday evening preceding the death of Lovett, he had by profuse sweats, and by often repeated doses of the emetic powder, been reduced very low. In this state, on that evening, other doses of this Indian tobacco were administered. When

this complaint. During one of the paroxysms I directed her to take a tea-spoonful of the brandy tincture every two hours. After taking

the second potion did not operate, probably because the tone of his stomach was destroyed, the repetition of them, that they might operate as a cathartic, was followed by convulsion fits, loss of reason, and death.

" But whether this treatment, by which the deceased lost his life, is or is not a felonious homicide, was the great question before the jury.

" To constitute the crime of murder, with which the prisoner is charged, the killing must have been with malice, either express or implied. There was no evidence to induce a belief that the prisoner, by this treatment, intended to kill or to injure the deceased; and the ground of express malice must fail. It has been said, that implied malice may be inferred from the rash and presumptuous conduct of the prisoner, in administering such violent medicines. Before implied malice can be inferred, the jury must be satisfied that the prisoner, by his treatment of his patient, was wilfully regardless of his social duty, being determined on mischief. But there is no part of the evidence, which proves that the prisoner intended by his practice any harm to the deceased. On the contrary, it appears that his intention was to cure him. The jury would consider whether the charge of murder was, on these principles, satisfactorily supported.

" But though innocent of the crime of murder, the prisoner may, on this indictment be convicted of manslaughter, if the evidence be sufficient. And the Solicitor General strongly urged, that the prisoner was guilty of manslaughter, because he rashly and presumptuously administered to the deceased a deleterious medicine, which, in his hands, by reason of his gross ignorance, became a deadly poison.

" The prisoner's ignorance is in this case very apparent. On any other ground consistent with his innocence, it is not easy to conceive, that on the Monday evening before the death, when the second dose of his very powerful emetic had failed to operate, through the extreme weakness of the deceased, he could expect a repetition of these fatal poisons would prove a cathartic, and relieve the patient: or that he could mistake convulsion fits, symptomatic of approaching death, for an hypochondriac affection.

the second spoonful, she was immediately relieved. In a subsequent attack, the experiment was repeated, increasing the dose to a

" But on considerlng this point, the court were all of opinion, notwithstandiug this ignorance, that if the prisoner acted with an honest intention and expectation of curing the deceased by this treatment, although death, unexpected by him, was the consequence, he was not guilty of manslaughter.

" To constitute manslaughter, the killing must have been a consequence of some unlawful act. Now there is no law, which prohibits any man from prescribing for a sick person with his consent, if he honestly intends to cure him by his prescription. And it is not felony, if through his ignorance of the quality of the medicine prescribed, or of the nature of the disease, or of both, the patient contrary to his expectation should die. The death of a man, killed by voluntarily following a medical prescription, cannot be adjudged felony in the party prescribing, unless he, however ignorant of medical science in general, had so much knowledge, or probable information of the fatal tendency of the prescription, that it may be reasonably presumed by the jury, to be the effect of obstinate wilful rashness at the least, and not of an honest intention and expectation to cure.

" In the present case there is no evidence that the prisoner, either from his own experience, or from the information of others, had any knowledge of the fatal effects of the Indian tobacco, when injudiciously administered: but the only testimony produced to this point, proved that the patient found a cure from the medicine.

" The law thus stated, was conformable, not only to the general principles which governed in charges of felonious homicide, but also to the opinion of the learned and excellent lord chief justice Hale. He expressly states that if a physician, whether licensed or not, gives a person a potion, without any intent of doing him any bodily hurt, but with intent to cure, or prevent a disease, and contrary to the expectation of the physician, it kills him, he is not guilty of murder or manslaughter.

" If in this case it had appeared in evidence, as was stated by the solicitor general, that the prisoner had previously, by administering this Indian tobacco, experienced

tea-spoonful every hour, and with the same effect; the patient declaring that she never found such immediate and entire relief from any of the numerous medicines she had previously taken for this complaint. She complained of dizziness, nausea, and some debility, after taking the second spoonful; and told me she suspected the medicine administered was tobacco. Not having since had any attack of the disease, I have had no opportunity of giving the medicine a further trial with a view to radical relief. I prescribed it also in a case of asthmatic cough at the naval hospital of this place; and with much relief to the patient. Dr. Samuel Stewart of this city, has prescribed both powdered leaves, and tincture, in a severe case

its injurious effects, in the death or bodily hurt of his patients, and that he afterwards administered it in the same form to the deceased, and he was killed by it, the court would have left it to the serious consideration of the jury, whether they would presume that the prisoner administered it from an honest intention to cure, or from obstinate rashness, and fool-hardy presumption, although he might not have intended any bodily harm to his patient. If the jury should have been of this latter opinion, it would have been reasonable to convict the prisoner of manslaughter at least. For it would not have been lawful for him again to administer a medicine, of which he had such fatal experience.

"It is to be exceedingly lamented, that people are so easily persuaded to put confidence in these itinerant quacks, and to trust their lives to strangers without knowledge or experience. If this astonishing infatuation should continue, and men are found to yield to the impudent pretensions of ignorant empiricism, there seems to be no adequate remedy by a criminal prosecution, without the interference of the legislature, if the quack, however weak and presumptuous, should prescribe, with honest intentions and expectations of relieving his patients.—*The prisoner was acquitted.*"

Tyng's Reports, vol. 6. p. 134.

of spasmodic asthma; * and from his own observations, and the testimony of his patient, the doctor is decidedly of opinion that the reputation of Indian tobacco in similar cases, as given by Thatcher and others, is well grounded. Dr. Stewart used the tincture made according to the formula established by the Essex District Medical Society, and administered it in doses similar to those used by Dr. Cutler.

Dr. Thatcher relates a case of hydrophobia effectually cured, in its last stage, by the Lobelia inflata. As the doctor gives us this account at second-hand, and not from a medical man; and as the supposed fact is in itself improbable, he will excuse me in venturing to question whether the case alluded to, was really one of hydrophobia. The accounts of hydrophobic cases too frequently originate in the ignorance of the common people of the real disease designated by that name, aided by fears, and exaggerated by iteration. Yet the peculiar effects of Indian tobacco on the mouth, fauces, and throat, and indeed the excessive relaxation of muscular energy which it produces, when extensively used, may, perhaps, afford some relief in this shocking disease, if timely administered.

* Mr. Potter, bookbinder, Carter's alley; who informed me he had been essentially relieved.

I have given the tincture in doses of twenty drops every hour, to two children (one four and the other three years old) labouring under whooping cough; and my success in those cases, has encouraged me to resort freely to the use of this medicine, as a pectoral and antispasmodic in this disease. Dr. Thatcher says, "as a pectoral "it has been found useful in consumptive coughs depending on mu- "cus accumulated in the bronchial vessels, by exciting nausea and "expectoration." Of its use in such cases I know nothing from experience. He continues, "from its very speedy operation as an "emetic, and its stimulating effects on the mouth and fauces, bene- "ficial results might be expected from its use in croup and whoop- "ing cough; and on some trials our expectations have been re- "alized in this respect." Of its efficacy in croup I cannot speak from experience, but the following case related to me by Dr. Eberle, whom I have already mentioned, sufficiently justifies the belief, that in this alarming complaint it may be resorted to with probable success, if not with confidence. All who have had occasion to use the common antimonial and other emetics in croup, have seen cause to lament their occasional want of activity; and the plant in question really seems well entitled to the notice of physicians, as an emetic, antispasmodic and expectorant, in that complaint.

"Feb. 16, 1818.—About two months ago I was called to see a child aged eight years, of the Rev. Mr. Endress in Lancaster, affected in a most violent degree with croup. I immediately bled the patient

largely, without however affording much relief. The child was nearly strangulated when I saw it first; the bleeding relieved it somewhat, but it still laboured excessively in breathing. From the suddenness of the attack of the disease, and its immediate great violence, I looked upon the case as spasmodic croup. Having seen in other cases the great relaxing effects of the Lobelia inflata, I determined to give to the child that emetic. I took about half a drachm of the dried plant, and infused it in half a pint of water. The child took one table-spoonful; in about ten minutes afterwards the dose was repeated. This induced a very great degree of nausea; a little more of the infusion was given which brought on vomiting. The disease from this moment disappeared; not the least hoarseness or difficulty of breathing remained. The nausea continued for more than three hours."

Dr. Eberle has also furnished me with an account of its use, by injection, instead of tobacco, in a case of strangulated hernia. The efficacy of the injected decoction in this instance, derives peculiar importance from the speedy relief occasioned by it, and the strong evidence it affords of the value of botanical knowledge to a physician, particularly one practising in the country.

"In September, 1816, I was called to Mr. Bowman, ten miles south of Lancaster, for the purpose of reducing a strangulated scrotal hernia; after having used a variety of means for the reduction of the

protruded parts unsuccessfully, I resolved on trying the tobacco injection; on making inquiry, however, I found that there was none in the house. A person was immediately sent to a neighbouring house for the purpose of procuring some. In the mean time, however, I gathered some of the Lobelia, and made a strong decoction of it. I injected half a pint of this decoction. In about twenty minutes the patient began to feel very sick, and made some efforts to vomit; I now endeavoured to reduce the hernia, but did not succeed. As the sickness did not proceed to a very great degree of prostration, I ventured to inject about one gill more. Almost immediately a very profuse perspiration broke out, over all his body; the sickness became extremely distressing; and every part of the body seemed in a perfect state of relaxation. The hernia was now readily returned. The si kness continued for nearly one hour after the last injection was given."

The wild tobacco should be plucked up by the roots, in the month of August or September, while in flower at the top of the branches, and full of the inflated capsules below. The whole plant should be then carefully dried for use, pulverised, or made into tincture. I have used both the tincture made from the recent plant, and from the dried leaves and capsules; and think the former was most active. From five to fifteen, and sometimes twenty grains of the powdered leaves, will produce emesis in an adult; but as it is a powerful plant, the dose should be small and repeated. The satua-

ted tincture may be given to an adult, to the extent of one, rarely two table spoonfuls every three hours; it is proper however to commence by a pap or tea-spoonful, and increase the dose. Ten drops of this tincture will be a sufficient dose for a child under twelve months; and over one, and under three years, from twenty to forty or fifty drops, as the circumstances may require, or the patient may seem to bear. A child of five years will bear eighty or ninety drops, without any distressing effect. If given in cases of croup, it will, perhaps, be necessary to use larger doses than these. I cannot conclude this article, without earnestly calling the attention of the physicians of our country to the plant under consideration. It is common every where in the United States, and easily recognised or identified.

TABLE XVI.

Fig. 1. Is a representation of the lower portion of Lobelia inflata, of the natural size, having about three inches of the stem near the root, cut off.

2. Is the upper portion of the same plant, severed from fig. 1, at the asterisk.

3. A flower.

4. The corolla opened.

5. The vesicular, nerved capsule.

6. The corolla removed, shewing the calix, column of five stamens, and pistil.

7. The incipient capsule and pistil.

8. A stamen separated.

Fig:1

Fig:2

Fig:3

Fig:4

Fig:5

Drawn from Nature by W.P.C.Barton

Tanner Vallance Kearny & Co. Sc.

PRINOS VERTICILLATUS.

Winter-berry.

PRINOS VERTICILLATUS.

WINTER-BERRY.

Black-Alder. Whorled Winter-berry. Virginian Winter-berry.

Germ. Die Wortelförmige Winterbeer. Virginische Winterbeere. (Willd.)

English. Deciduous Winter-berry, or Service-bush.

French. Apalanche (Apalanchine) à feuilles de prunier.

PRINOS verticillatus, L. Sp. Pl. vol. 1. p. 471. Munt. Phyt. 213. t. 51. Duham. Arb. 1. p. 62. t. 23. Mill. Dict. n. 1. Du Roi Harbk. 2. p. 157. Wangenh. Amer. 97. Willd. Arb. 236. Willd. Sp. Pl. tom. 2. par. 1. p. 225. Gron. Virg. 39. Houttuyn. Lin. Pfl. Syst. 1. p. 430. Pers. Syn. Pl. vol. 1. p. 387. Mich. Fl. Boreali-Am. vol. 2. p. 236. Coxe. Am. Disp. ed. 3. p. 519. Barton's Collections, part 2. p. 5. Pursh. Fl. Am. Sep. vol. 1. p. 221. Bart. Prodr. Fl. Ph. p. 44. Big. Florula Bost. p. 79. Shoepf. Mat. Med. Am. p. 50. Smith's Insects of Georgia. t. 86. Ait. Hort. Kew. ed. 2. vol. 2. p. 312. Willd. Enum. 394. Muhl. Cat. Fl. Am. Sep. p. 36. St. Hilaire, Germ. des plant. vol. 2. p. 269.

PRINOS.

Gen. Plant. ed. Schreb. n. 594.

Cal. 6-fidus. *Cor.* 1-petala, rotata. *Bacca* 6-sperma. (Willd. Sp. Pl.)

Cal. inferus, 6-fidus. *Cor.* 1-petala rotata, 3-7-fida. *Bac.* 6-sperma. *Dioicus.* (Pursh. fl. Am. Sep.)

Prinos verticillatus.

Nat. Syst. Juss. *Rhamni.* Classis XIV. Ordo XIII.

PRINOS, L. *Apalachine.* Calix minimus 6-fidus. Corolla 6-partita plana. Stamina 6, filamentis subulatis, antheris oblongis. Stylus brevis ; stigma 1. Bacca subrotunda, fœta, 6 nucibus 1-spermis. Arbusculæ aut frutices; folia alterna, in quibusdam sempervirentia ; pedunculi axillares multiflori ; flores parvi, interdùm 5-7-8-fidi 5-7-8-andri 5-7-8-spermi. Juss. Gen. Plant. p. 379.

Nat. Syst. St. Hilaire. *Neprunées.*

Nat. Ord. Linnæi, *Dumosæ.*

Classis *Hexandria.* Ordo *Monogynia.* Lin. Syst.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, six-cleft half way down, flat, very small, permanent. *Cor.* of one petal, wheel-shaped; tube none ; limb flat ; deeply cloven into six ovate segments. *Stam.* Filaments six, awl-shaped, erect, shorter than the corolla ; anthers oblong, obtuse. *Pist.* Germen superior, ovate, terminating in a style shorter than the stamens; stigma obtuse. *Peric.* a roundish berry, six-celled, much larger than the calix. *Seeds* solitary, bony, obtuse, convex on one side, angular on the other.

Obs. The chief difference between this and *Ilex* consists in its being hexandrous ; but the parts of fructification, according to Jussieu, agree occasionally with that genus in number. *Prinos* is sometimes dioicious.

Ess. Ch. Calix inferior, six cleft. Corolla of one petal, wheel-shaped, from three to seven cleft. Berry of six seeds. Ency.

PRINOS Gronovii ; foliis ovalibus, serrulatis, acuminatis : fasciculis florum masc. axillaribus, umbellati-formibus ; floribus fœmineis aggregatis ; utrisque 6-partitis. Mich. Fl. Boreali-Am.

(in Dioecia-Hexandria.)

PRINOS verticillatus, foliis deciduis ovalibus serratis acuminatis subtus pubescentibus, fasciculis florum masc. axillaribus umbelluliformibus ; fœmineis aggregatis utrinque 6-partitis.

Willd. Sp. Pl. et Pursh Fl. Am. Sep.

SYNONYMA.

ALCANNA major latifolia dentata. Munt. Phyt.

AQUIFOLIUM foliis deciduis. Duham. Arb.

PRINOS Gronovii. Mich. Fl. Boreali-Am.

PRINOS padifolius. Willd. Enum.

Pharm. *Prini verticillati* Cortex (et Bacca).

Vis: Antiseptica (et tonica).

Usus: Gangrena, Icterus. Shoepf. Mat. Med.

DESCRIPTIO UBERIOR.

Frutex fructu formosus. Rami horizontales, patuli, cinerei. Folia decidua, ovalia, serrata, acuminata, basi attenuata, brevius petiolata nervibus subtùs pilosiusculis. Flores minimi, axillares. Corolla alba, monopetala, plerumque 6-partita. Baccæ formosæ, coccineæ, amaræ. Habitat in paludibus, et umbrosis humidis; floret Junio et Julio. Bart. Fl. Ph. MS.

One of the most beautiful ornaments of the swamps of our country, in the autumn and winter, is the Winter-berry. The elegant colour of the berries, aggregated in numbers of two and three on the small branches of the shrub, together with their multitude, afford a pleasing contrast to the fading vegetation. The generic name Prinos, is of very ancient origin, having been used by Theophrastus and Dioscorides; and it is supposed to be derived from the Greek verb πρίω, to saw; and to have been applied to this genus by Linnæus, on account of the strong serratures of the leaves in some of the species.

Prinos verticillatus is a shrub, of from eight to ten feet in height, found growing in and near swamps, on the borders of rivulets and ditches, and in damp woods with moist bottom, every where from

Canada to Georgia. It flowers in the month of June, and at this time it has a very ordinary appearance; but when its berries are full ripe, which is in the last part of October, and beginning of November, is strikingly beautiful. At these periods the leaves remain on; but even after they have fallen, the appearance of the shrub, from its multitude of rich crimson, and sometimes scarlet berries, is exceedingly handsome.

The stem is shrubby, and branched all the way up. The branches are alternate, horizontal, spreading, and of a bluish grey or ash-colour; the extremities, or new shoots, being greenish. The leaves are oval, tapering at their base, ending in a long point; and sawed on their edges. They are of a dark, or somewhat olive-green colour, and smooth above, but downy on the nerves and veins beneath. They are alternately arranged along the branches, and are supported by short foot-stalks. The flowers are often dioicous; small, and white, and grow together in axillary and lateral groups of from three to four in number, rarely solitary. The corolla is monopetalous, rotate; and six, sometimes seven cleft. The stamens are generally six in number. The berries are globular, and vary a little in size, as represented in the plate, but are generally of the magnitude of a marrowfat pea. As winter advances, they become of a more purplish colour. That the plant may be easily identified when sought after for medical purposes, I have represented it both in flower and fruit; but while in the latter condition, it should be

chosen for medical use. This plant was introduced into England in 1736, by Peter Collinson.

MEDICAL PROPERTIES.

Prinos verticillatus, is, perhaps, as well known among country physicians (who call it Black-Alder) as any indigenous medicinal plant of the United States. It is universally and justly celebrated as a medicine. Shoepf first publicly noticed its virtues. He says it is an "antiseptic, and is used in gangrene and jaundice." This is all he has on the subject; and the verity of his observation is proved by the fact, that at this time it is successfully employed by country practitioners and others, as an antiseptic, in cases of foul ulcers and mortification. The bark is astringent, bitter, pungent, and not very disagreeable. The first of these virtues has probably led to its use in diarrhœa, which disease Mr. Abbot says it is useful in curing. It has been, and continues to be, much used, and efficatiously, instead of Peruvian bark, in intermittent fevers and other complaints. In cases of great debility, unattended by fever, it has been highly extolled; and both its sensible properties, and well-known effects, render it probable that its reputation in such cases is merited. It has also been, used and praised, as a corroborant in anasarca and gene-

ral dropsy; and as an antiseptic and tonic in cases of incipient gangrene.* In these cases it is given internally, and employed at the same time, externally, as a wash. The berries participate in all the virtues already enumerated, as appertaining to the bark; and brandy infusions or tinctures made of them, are in general use in the country, in all cases where bitter tinctures are indicated. Country practitioners combine the bark, with the root of sassafras (Laurus sassafras) with white-oak bark, and other things, and make a decoction of the mixture, which is much commended by them as a wash in foul ulcers, and gangrene.

Upon the whole, the Prinos verticillatus may be confidently recommended to the notice of physicians, as a plant possessing in an eminent degree, the properties of vegetable, astringent, and tonic medicines. And if, added to these, we take into view the antiseptic powers it is reputed to possess, it will be found deserving of no ordinary commendation. Of the last mentioned property, indeed, from experience, I know nothing; but having used both bark and berries on several occasions, it is with no little satisfaction that I bear testimony to its deserved claim to those commendations which have been bestowed on it for the other virtues.

The bark may be used either in substance or in decoction. To the latter it readily yields its virtues; as it also does to vinous or

* Barton's Collections.

spiritous menstruums. From one drachm to three, of the powdered bark, may be administered in the course of twenty-four hours. An ounce of the bark, added to a pint and an half of water, and boiled down to a pint, will make a useful decoction, which may be taken in the dose of a gill every two hours. A saturated tincture is a convenient and useful way of extracting the virtues of the plant; and this tincture may be made by mixing the bark and berries together, and letting them digest for a few days.

It may be proper to caution those who gather the Prinos or Black-Alder, for medical use, against mistaking for it the Candle-Alder, or Swamp-Alder, which names are applied to a species of a very different genus, the Betula serratula. The name Black-Alder may lead to a further mistake, since it is appropriated also to another species of Prinos, the *P. ambiguus*, and to the Ilex deliculata of Barton (Ilex Canadensis). It is not improbable, however, that other species of Prinos, besides that under notice, will be found possessed of similar medical virtues. This it would be important to inquire into.

TABLE XVII.

Fig. 1. Is a delineation, of the natural size, of a portion of Prinos verticillatus in fruit, culled on the 14th of October. A week or two after this time, the leaves fall off, and the berries are left.

2. A little piece of a flowering branch, plucked in the middle of June, with the leaves out when they begin to widen.

3. A group of flowers, consisting of three, as is common, with the scale-like bracts at the union of the peduncles.

4. The pistil.

5. A back view of the calix.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Drawn from Nature by W.P.C. Barton.

Printed by Vallance, Kearny & Conner.

EUPHORBIA IPECACUANHA.

(American Ipecacuanha.).

EUPHORBIA IPECACUANHA.

AMERICAN IPECACUANHA.

Ipecacuanha Spurge. Willd. Ipecac.

Germ. Brechenmachende Wolfsmilch. (Willd.)

EUPHORBIA Ipecacuanha, L. Sp. Pl. p. 653. Willd. Sp. Pl. tom. II. pars 2. p. 900. Gron. Virg. 58. ed. n. 75. Amœn. Acad. vol. 3. p. 117. Houttuyn Pfl. Syst. 7. p. 55. Mich. Fl. Boreali-Am. vol. 2. p. 212. Muhl. Cat. Pl. Am. Sep. p. 47. Pursh. Fl. Am. vol. 2. p. 606. Bart. Prod. Fl. Ph. p. 53. Pers. Syn. Pl. vol. 2. p. 14. Shoepf. Mat. Med. Am. p. 74. Puihn. Mat. Venenaria. 99. Drake's Pict. Cin. p. 87. Barton's Collections, part 1. p. 26.

EUPHORBIA.

Gen. Plant. ed. Scheb. n. 823.

Cor. 4-s. 5-petala, calyci insidens. *Cal.* 1-phyllus, ventricosus. Caps. 3-cocca.

Nat. Syst. Juss. *Euphorbiæ*. Classis XV. Ordo 1.

EUPHORBIA, L. * Tithymalus, T. * Tithymaloïdes, T. * Euphorbium, Isn. * *Titimale, Euphorbe.* Hermaphrodita. Calix 1-phyllus (corolla T.) turbinatus, limbo 8-10-dentato, dentibus alternis inflexis, alternis exterioribus (petala L.) formâ variis, crassiusculis, glandulæformibus aut petaloïdeis, nunc simplicibus, nunc 2-3-fidis aut rariùs multifidis. Stamina indefinita 12 aut plura, rariùs pauciora;

filamenta receptaculo inserta, medio articulata, diverso tempore erumpentia; antheræ didymæ. Paleæ aut squamulæ (petala *Adans.*) staminibus interjectæ, definitæ aut sæpiùs indefinitæ, simplices ant sæpiùs ramosæ vel fimbriatæ. Germen inter stamina centrale stipitatum 3-gonum; styli 3; stigmata 6. Capsula stipite reflexo extrà calicem nutans 3-cocca, 3-sperma.

Juss. Gen. Plant. p. 385.

Nat. Ord. Lin. *Tricoccæ.*

Classis *Dodecandria.* Ordo *Trigynia.* Lin. Syst.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, inflated, somewhat coloured, with four, in some instances, five, marginal teeth, permanent. *Cor.* Petals, or Nectaries, four, sometimes five, turbinate, gibbous, thick, abrupt, unequal in situation, alternate with the teeth of the calyx, inserted into its margin by their claws, permanent, bearing plenty of honey. *Stam.* Filaments numerous, 12 or more, thread-shaped, jointed, longer than the corolla, inserted into the receptacle, coming to maturity at different periods, separated by bristly scales: anthers roundish, of two distinct lobes. *Pist.* Germen superior, roundish, three-sided, elevated on a stalk above the margin of the calix; styles three, cloven; stigmas obtuse. *Peric.* Capsule stalked, roundish, three-lobed, of three cells, and three valves which separate elastically. *Seeds* solitary, roundish.

Obs. The petals or nectaries are for the most part four, in some flowers five, which often happens on the same plant, such flowers being furnished with stamens only, without a pistil, and coming forth earlier than the rest. In many the petals are glandular, in others crescent-shaped, or toothed; in some few thin and membranous; they are commonly situated as it were on the outside of the calix. The capsule is either smooth, or hairy, or warty.

Ess. Ch. Calix of one leaf, inflated, inferior. Nectaries four or five, inserted into the calix. Capsule stalked, three-lobed.

Ency.

Euphorbia Ipecacuanha, perennis, procumbens, pumila, glabra: foliis oppositis, sessilibus, obovalibus, oblongisve, integris: pedunculis solitariis, 1-floris, elongatis. Mich. Fl. Bor. Am.

SYNONYMA.

Tithymalus, flore exiguo viridi apicibus flavis, antequam folia emittit florens. Gron. Virg.

Euphorbia protulacoides? *Auctorum.*

DESCRIPTIO UBERIOR.

Planta varia; rubra vel pallido-viridis. Radix perennis, elongata, tuberculata: extra colore flava, internè albida. Caules numerosissimi dichotomi, geniculato-procumbentes, seu erectiusculi spithamæi. Folia opposita, (uno alterove ex infimis alterno) ovalia interdum lanceolata, rarius linearilanceolata, lævia, integerrima; nonnunquam emarginata. Pedunculi solitarii axillares, uniflori, longitudine foliorum dum florent, dein fructiferi duplo longiores. Calix crassus. Habitat in arenosis arvis, et sabulosis, florens Maio. Bart. Fl. Ph. MS.

The genus Euphorbia, is the ευφορβιον of Dioscorides; and it was so named after Euphorbus, physician to Juba, king of Lybia.

The very singular species which is now to be described, is exclusively a native of the United States. It is extremely amorphous; varying so much in the shape of its leaves, their colour, and in fact, in the whole appearance of the plant, that in its different states it might be mistaken by those unacquainted with it, for several distinct species of the same genus.* The root is perennial, from three to seven feet in length, and generally about three quarters of an inch, an inch, or an inch and an half in diameter. It is tuberculated, and of a yellowish colour; sending off towards its upper end, numerous

* It is full of a milky juice, which by siccation between the fingers, is convertible into cauoutchouc.

smaller roots, generally about the thickness of a crow or goose-quill, and sometimes larger. The stems are numerous, dichotomous, white under the earth or sand, and red, pale-green, or yellow above. The stipules are heart-shaped and small. The leaves are opposite, sessile ; and are generally oval, sometimes obovate, and occasionally lanceolate, as represented in fig. 5,.and not unfrequently even linear. They are always entire on their margins, but sometimes, when obovate, are emarginated or notched at the apex. While the plant is in flower, in May, the leaves are very small, as in fig. 1 and fig. 2 ; when it grows older, they become much increased in size, as in fig. 3 and fig. 4. The flowers are situated on solitary one-flowered axillary peduncles, varying in length from three quarters of an inch, to three inches. The seeds are three in number, enclosed in a triangular-like capsule.

This plant is said by Michaux, to grow from Pennsylvania to Carolina. It will, I presume, be found on the sandy shores of our sea-board, from Jersey to Georgia. I have found it (in the year 1810) in the sand, near the light-house at Cape Henry in Virginia. It grows in the greatest abundance in the sandy fields of Jersey, opposite to Christian street, (of Philadelphia) and about half a quarter of a mile from the Delaware. It grows also in similar situations, along the course of the Delaware, for ten or fifteen miles below this city, and probably further. It delights in a loose, moist, sandy soil ; and is often found growing in beds of sand only. As the root alone is

used, it may be collected for medical purposes, at any time. I have found it equally efficacious, dug up in April and September.

The Euphorbia portulacoides, described by Kalm, and Linnæus and others on his authority, as growing " in Philadelphia," is, I strongly suspect, nothing more than the oval-leaved variety of the E. Ipecacuanha. I am the more inclined to this belief, from the circumstance of Linnæus, Willdenow, Kalm, and others, having described the E. Ipecacuanha, with only lanceolate leaves. This, we know, is rather a rare variety in the leaves of our plant. But further, I do not learn that any American botanist is acquainted with the plant termed E. portulacoides.

MEDICAL PROPERTIES.

It is not without great satisfaction that I now present the medical profession, with a figure and history of an indigenous plant, which promises to yield a medicine, equal in importance, if not on some accounts superior, to the common Ipecacuanha of the shops. That the Euphorbia Ipecacuanha is possessed of virtues entitling it to supersede the use of the imported Ipecacuanha, my own extensive experience with it, corroborated by the numerous trials of the medi-

cine by Professor Hewson, my brother, Dr. John Rhea Barton,* of the Pennsylvania hospital, and others, all embolden me to declare. Previously to the experiments instituted by myself, and, at my request, by Dr. Hewson and others, little more was known of the American Ipecacuanha, than that it was possessed of emetic properties. The dose in which it operated, had not been ascertained, and indeed all who wrote of it, merely mentioned it as an emetic. The earliest printed notice of this plant that I can find is in the work of Dr. Puihn,† published at Leipsic in the year 1785. He simply notices it thus: "Euphorbia Ipecacuanhæ Americæ septentrionalis incolæ ut emetico utuntur." And Shoepf (who seems only to have seen the variety with lanceolate leaves) remarks, that this plant is called "Ipecacuanha," and observes, "A nonnullis, precipue incolis Borealibus temere ad vomitum ciendum interne usurpatur. Clayt".‡ The late Professor Barton seems not to have known more of the Euphorbia than what he learned from Shoepf. He says in his Collections, "it is employed as an emetic by some of the country people. I do not know the dose. I suppose it is small, for it be-

* The trials of the medicine made by my brother, on the patients of the hospital, were instituted with a design of making this plant the subject of his Inaugural Dissertation. This intention was however abandoned, in consequence of learning that another gentleman had chosen the same subject.

† "Materia Venenaria Regni Vegetabilis," p. 99.

‡ Mat. Med. Am. p. 74.

longs to the head of drastic emetics. I am not certain that it would be a valuable addition to the materia medica; but perhaps it would."*

Induced by the sensible properties of the plant, and the remarks just quoted, I last year determined to give a fair and extensive trial to the medicinal virtues of this species of Spurge. A portion of the dried root was finely pulverised, and administered with caution to various patients. I at first commenced with small doses, of three, four, and five grains. In this quantity the powder nauseated, and produced a determination to the skin, as small doses of Ipecacuanha do. On increasing the number of grains to ten, vomiting was produced, with occasionally an operation on the bowels. Fifteen grains I found sufficient to produce full vomiting in most cases; and in a single instance, having given the powder to the extent of twenty-five grains, I had reason to be alarmed at the violent cathartic effect which ensued, and continued for fourteen hours, attended by distressing sickness of the stomach.

I have tried this species of Euphorbia in Dover's powders, instead of the Ipecacuanha; and in various other combinations into which the latter article enters as a part: and can confidently assert, that in all the instances, it has been equal, if not superior, to the

* Part 1. p. 26.

foreign Ipecacuanha. It has indeed some advantages which the imported article does not possess. It is not unpleasant, either in taste or smell; and it is well known that to some persons the officinal Ipecacuanha is so disagreeable that they cannot take it at all. Upon the whole, the attention of physicians may be confidently called to our native Ipecacuanha, as possessed of virtues equal, and in some respects superior to imported Ipecacuanha. Its occasional cathartic effect is no more than what follows the use of the foreign medicine, on some occasions. This view of the subject derives peculiar importance from the well known fact, that the Ipecacuanha of the shops (at least in this country) is rarely good—perhaps seldom genuine. This is not the proper place to inquire into the cause of this palpable adulteration, or whether it takes place before the article is sent to us. It is a common complaint among physicians, that it now takes twice the quantity of Ipecacuanha that was formerly necessary, to produce a full vomiting. The chemical analysis has been deferred, owing to the want of the sufficient quantity of the root. But it shall appear in the appendix, with the fourth number.

TABLE XVIII.

Fig. 1. Represents an entire plant of the crimson variety (E. Ipecac.) with a portion of the root. The specimen from which this figure was drawn (taken in May) had a root of the thickness of the lowest part, five and an half feet long. Where the stems are red, they appeared above the sand.

2. A portion of a specimen of the green variety, also culled in May.

3. A leaf of the variety, fig. 1, from the advanced plant.

4. Ditto of the variety fig. 2.

5. The variety with lanceolate leaves.

6. A flower with its peduncle.

7. The same with fruit.

Table 19.

Fig. 2.

Fig. 1.

Fig. 5.

Fig. 3.

Fig. 4.

Drawn from Nature by W. P. Swainson.

Tinted by Vallance, Newman & Co.

COMPTONIA ASPLENIFOLIA.

(Sweet-fern.)

COMPTONIA ASPLENIFOLIA.

SWEET-FERN.

Sweet-Ferry. Sweet Fern-bush. Spleenwort-leaved gale. Shrubby Sweet-Fern.

Germ. Streifenfarrenblättrige Comptonia. (Willd.)

Comptonia asplenifolia. Ait. Kew. 3. p. 334. Syst. Veg. 860. Sp. Pl. 1418. Willd. Sp. Pl. 4. p. 320. Pursh. Am. Sep. 2. p. 635. Mich. Am. 2. p. 203. Duham. Arb. 1. p. 366. Hort. Cliff. 456. Gron. Virg. 153. Cold. Noveb. 224. Petiv. Mus. 775. Pluk. Alm. 250. t. 100. f. 67. Houttuyn Lin. Pfl. Syst. 2. p. 346. Coxe. Disp. 3d ed. p. 399. Big. Floru. Bost. p. 219. Bart. Pr. Fl. Ph p. 88. Shoepf. Mat. Med. Am. p. 141. Amœn. Acad. 4. p. 522. Barton's Collec. part 1. p. 10.

COMPTONIA.

Gen. Plant. ed. Schreb. n. 1764.

Masculi: *Amentum.* *Cal.* squama. *Cor.* 2-petala. *Fil.* bifurca.

Feminei: *Amentum.* *Cal.* squama. *Cor.* hexapetala. *Styli* 2. *Nux* ovata.

Nat. Syst. Juss. *Amentaceæ.* Classis XV. Ordo IV.

Nat. Ord. Linnæi. *Amentaceæ.*

Classis *Monoicia.* Ordo *Triandria.*

Gen. Ch. *Male flowers.* *Catkin* cylindrical; loosely imbricated all round with concave, kidney-shaped, acuminate, caducous, one-flowered scales. *Cal.* Perianth two-leaved; leaves equal, boat-shaped,

shorter than the scale. *Cor.* none. *Stam.* Filaments three, shorter than the calix, forked; anthers six, two-valved. *Female flowers.* *Catkin* egg-shaped, closely imbricated with scales similar to those of the male. *Cal.* Perianth six-leaved; leaves opposite, in pairs, filiform, membranous at the base, many times longer than the scale. *Cor.* none. *Pist.* Germ roundish; styles two, capillary. *Peric.* none, *Seed* Nut-oval, one celled, without valves.

Ess. Ch. Male flowers in a catkin. Calix two-leaved. Corolla none. Anthers forked. Female flowers in a catkin. Calix six leaved. Corolla none. Styles two. Nut oval.

COMPTONIA asplenifolia, foliis longo-linearibus alternatim crenato-pinnatifidis. Willd. et Pursh.

SYNONYMA.

LIQUIDAMBAR peregrinum. Syst. Veg. 860.

LIQUIDAMBAR asplenifolium. Sp. Pl. 1418.

MYRICA. Gron. Virg. 155. Cold. Noveb. 224.

GALE Mariana asplenii folia. Petiv. Mus. 773.

DESCRIPTIO UBERIOR.

Frutex 3-ped. Caules fruticosi, ramosi, hirti. Folia longo-lanceolata, profunde alternato-sinuata. Ament. Mas. laterales, erecti, seu sub-arcuati. Ament. fœmin. rubr. Nux ossea, lenticularis, nuda, obsoletè striata, nitida. Habitat in sylvis, florens Martio et initio Aprilis. B.

THE only North American species of a genus, dedicated by Dr. Solander to the Right Rev. Henry Compton, Lord Bishop of London. It is a shrubby plant, having leaves resembling the Asplenium or Spleen-wort, and hence the specific name. It is much

branched, and attains the height of two, and from that to three, very seldom four feet. The stems are slender, branched, somewhat hairy, and are crowded with a profusion of lanceolate leaves, about three or four inches long, and half an inch broad; deeply cut into roundish notches, down nearly to the middle-rib. The male catkins are about an inch or an inch and a quarter long, lateral, sometimes erect, but most frequently horizontally curved, as represented in the plate. The female catkins are situated lower on the stems than the male, and seldom exceed half an inch in length; are ovate, of a red colour.

The fertile flowers produce little nuts of an ovate shape, flattened and margined at the base, obscurely striped, of a shining yellowish colour at the top, and nearly white towards the bottom. These nuts are sessile, and nearly concealed by the persistent segments of the corolla, which by this time are elongated and crowded, and gives to the fruit the appearance of a burr. The root is ligneous, long, and horizontal, and often extending to the length of three or four feet.

The whole plant is possessed of a strong, peculiar, resinous, and spicy scent, particularly observable when the leaves are bruised or pressed in the hand, or between the fingers.

The Sweet-fern is very common throughout the United States. Bosc remarks, that in Carolina the branches generally died at the

end of the third year, the new wood then succeeding to the old, as in the *rubi*; and that it was also seldom found in fruit, though it flowered abundantly. The latter circumstance I have observed as regards the plant in this neighbourhood, where it is abundantly found, particularly on the high woody banks of Wissahickon creek, and in woods, and along their margins, in Jersey. It flowers very early in April, or the last of March; and unless sought for at this early season, will seldom be found flowering; that state of the plant continuing but a very short period.

Under the names of Sweet-fern, and Sweet-ferry, this shrub is brought in great quantities to our market, particularly by the country people, who put it up in large bunches which are sold for a few cents. My enquiries in the market for two or three years past, result in the belief that the Sweet-fern is much used, medicinally, in family practice. It is always for this purpose that it is purchased.

MEDICAL PROPERTIES.

Sweet-fern has been introduced into this work, principally because it is so much used in domestic practice. It is an astringent and tonic, and hence its usefulness in diarrhœa; for it is in this

disease that it is so much employed. I frequently used it in my practice last summer, in the form of a weak decoction. It is relied on almost exclusively, by many persons, for the cure of cholera infantum; but from my trials of the plant in looseness of the bowels, in children, I do not think it ought to be so much depended on; though I have known instances in which, aided by proper regimen, it effected a cure. The decoction sweetened, forms an extremely grateful drink for children in the summer complaint; and from its moderate astringency, and bracing and tonic effect on the bowels, it will always be found to be an useful auxiliary in the treatment of this disease. I gave it last summer to one of my children, in this complaint, and with encouraging success. The other virtues ascribed to it by Shoepf, are not, perhaps, entitled to much consideration.* Neither is the common practice in Jersey, of using the decoction as a fomentation in rheumatism and contusions, likely to result in much relief.

* "Infusum foliorum in rhachidite, debilitate febrili, utile. Radix masticata sanguinem sistit. *Colden.*" Shœpf. Mat. Med. p. 142.

TABLE XIX.

Fig. 1. Represents a flowering twig of Comptonia asplenifolia, culled in April. At this time the dead leaves of the preceding year are frequently found on the stems; and the buds of the new leaves, only begin to appear. The long aments are the male, the short red ones, the female.

2. A branch of the plant in fruit, with the perfect leaves.

3. A stipule.

4. A collection of nuts cleared of the surrounding investment.

5. A single nut.

(All of the natural size.)

Table 20.

Fig. 2.

Fig. 1.

Drawn from Nature by W.P.C. Barton

Tanner, Vallance, Kearny, & Co. sc

ERIGERON PHILADELPHICUM.

(SCABIOUS.)

(Philadelphia Flea-bane.)

ERIGERON PHILADELPHICUM.

SCABIOUS.

Skevish. Philadelphia Flea-bane.

ERIGERON Philadelphicum, L. Sp. Pl. 1211. Houttuyn. Pfl. Syst. 9. p. 325. Willd. Sp. Pl. tom. 3. pars 3. p. 1957. Mich. Fl. Boreali-Am. vol. 2. p. 123. Pursh. Fl. Am. Sep. vol. 2. p. 532. Coxe. Disp. 3d ed. p. 314. Big. Fl. Bost. p. 194. Pers. Syn. Pl. vol. 2. p. 430. Ait. Hort. Kew. ed. 2. vol. 5. p. 32. Muhl. Cat. Pl. Am. Sep. ed. 2. p. 76. Barton's Collections, part 2. p. 46. Bart. Prod. Fl. Ph. p. 79.

ERIGERON.

Recept. nudum. *Pappus* pilosus. *Cor.* radii capillares (coloratæ).

Nat. Syst. Juss. *Corymbiferæ.* Classis X. Ordo III.

ERIGERON, L. * Virga aurea, T. * Aster, T. * Flores radiati ligulis linearibus numerosis. Calix oblongus imbricatus inæqualis. Pappus pilosus. Ligulæ in aliis albidæ aut purpurascentes; luteæ in aliis, quarum insuper antheræ nonnunquàm basi 2-setosæ Inulas indicant.

Nat. Ord. Lin. *Compositæ discoideæ.*

Classis *Syngenesia.* Ordo. *Superflua.* Lin. Syst.

Gen. Ch. *Common calix* oblong, cylindrical, imbricated; scales awl-shaped, erect, gradually longer, nearly equal in breadth. *Cor.* compound, radiated; *florets* of the disk all perfect, tubular, fun-

nel-shaped, with an equal five-cleft limb ; those of the radius female, ligulate, linear, awl-shaped, erect, for the most part entire. *Stam.* (in the tubular florets) Filaments five, capillary, very short ; anthers forming a cylindrical tube. *Pist.* (in the tubular florets) Germen minute, crowned with hairs longer than its own corolla ; style thread-shaped, the length of the hairs ; stigmas two, oblong, revolute ; the female or ligulate florets differ in having their corolla about as long as the hairs, and very slender stigmas. *Peric.* none, except the closed permanent calix. *Seeds* in the florets of the disk as well as of the radius oblong, small. *Down* long, capillary. *Recept.* naked, flat.

Obs. Dillenius observes that the innermost or central florets of the disk are generally males. One species has those of the radius destitute of a corolla.

Ess. Ch. Receptacle naked. Down simple. Florets of the radius linear, very narrow, numerous. Calix imbricated. Ency.

Erigeron Philadelphicum, pubescens ; foliis cuneato-oblongis rariter inciso-dentatis, caulinis semi-amplexicaulibus, caule debili simplici superne corymboso, pedunculis elongatis unifloris, radiis capillaceis calyce hemisphærico duplo longioribus. Willd. Mich. et Pursh.

DESCRIPTIO UBERIOR.

Folia oblonga lanceolata basi cordata amplexicaulia subserrata, margine tenuissime cilliata. Corollæ purpureæ capillares longitudine disci. Willd. p. 1958.

The genus, of which two species are now to be described, is the ηριγερων of the ancient Greeks, from ηρ, *the spring*, and γερων, *an old man*, because the plants which gave rise to the name were hoary in the spring.

The Erigeron Philadelphicum is an herbaceous perennial plant, two or three feet in height, much branched at the top. The root is

branched, somewhat fibrous, and of a yellowish cast. The branches are pubescent. Radical leaves, ovate-lanceolate, on long petioles, and occasionally having one or two serratures. Upper leaves lanceolate, entire sessile, and somewhat amplexicaule. Flowers numerous, erect, situated on a large diffuse pannicle. Calix hemispherical. Florets of the ray capillary, whitish, or blue; sometimes purplish. It grows in the greatest profusion in all the fields near Philadelphia; and it ranges extensively throughout the United States, in similar places. It begins to flower in July, and continues blooming through the month of August. It should be collected for medical use while in flower.

Fig. 1.

Fig. 2.

Drawn from Nature by W.P.C. Barton.

Tanner, Vallance, Kearny, & Co. sc

ERIGERON HETEROPHYLLUM.

(Sweet Scabious.)

ERIGERON HETEROPHYLLUM.

SWEET-SCABIOUS.

Various-leaved Flea-bane.

Germ. Verschiedenblättriges Berufungskraut. (Willd.)
Jährige Sterneblume. (Willd.)

ERIGERON heterophyllum. Muhlenb. in Litt. Willd. Sp. Pl. tom. 3. pars 3. p. 1956. Willd. Sp. Pl. tom. 3. pars 3. p. 2041. Ait. Kew. 3. p. 209. Hort. Cliff. 409. Hort. Ups. 262. Roy. Lugdb. 169. Mill. Dict. n. 28. Fl. Dan. 486. Hoff. Germ. 297. Roth. Germ. I. 367. II. 357. Moris. Hist. 3. p. 122. Cor. Canad. 193. t. 194. Houttuyn Lin. Pfl. Syst. 9. p. 386. Muhl. Cat. Am. Pl. p. 76. Pursh. Fl. Am. Sep. vol. 2. p. 534. Pers. Syn. Pl. vol. 2. p. 431. Bart. Prod. Fl. Ph. p. 79. Suter. Fl. Helvetica. vol. 2. p. 185.

ERIGERON heterophyllum, foliis radicalibus subrotundo-ovatis profunde dentatis petiolatis, caulinis lanceolatis acutis medio subserratis corymbo terminali. Willd. Sp. Pl. p. 1956.

DESCRIPTIO UBERIOR.

Folia radicalia longè petiolata subrotundo-ovata profundè et grossè dentata, petiolo subalato bidentato; inferiora caulina bipollicaria sessilia ovata acuta utrinque serraturis profundis tribus notata triplinervia; superiora lanceolata acuminata vel integerrima, vel serraturis binis acuminatis utroque la-

tere instructa, ut radicalia et inferiora glabra atque margine tantum setis rigidis ciliata. Corymbus terminalis fastigiatus. Corollæ radii albæ filiformes copiosæ. Pili in caule breves patentes. Willd. Sp. Pl. tom. 3. 1956.

Erigeron heterophyllum is a plant common to Europe and North America. It is the Aster annuus of Linnæus, and is twice described by Willdenow, in his Species Plantarum ; under the different names of Aster annuus and Erigeron heterophyllum. There remains no doubt, however, at this time, of the identity of these two plants.

Sweet-Scabious is as common a plant in the United States, as its companion, the Philadelphia Flea-bane, and is always found growing with it. Its geographical distribution, therefore, throughout our States, is the same as that of the E. Philadelphicum. By the common people, the two plants are distinguished by the names Scabious and Sweet-Scabious, for what reason cannot be satisfactorily learned. The vulgar epithet Skevish, is sometimes applied to the species under consideration, as well as to the E. Philadelphicum.

The root of Sweet-Scabious is like that of the preceding species. It sends up from three to five stems, which are very much branched above, and attain the height of two or three feet. The stems are roundish, striated, pubescent, and about the thickness below, of a pipe-stem, gradually tapering towards the top, where it is divided into numerous spreading branches. The primary branches

are considerably shorter than the secondary, and flower first. The radical leaves are ovate, acute, deeply toothed, and supported by broad winged petioles, half the length of the leaves. The stem-leaves are sessile, lanceolate, acute, deeply sinuated, or remotely serrate-toothed in the middle. The leaves of the branches are lanceolate, entire, and closely sessile. All the leaves, except those from the root, are ciliated at and near the base, as represented in the plate. The flowers are borne in terminal, rarely lateral, corymbs; are numerous, and resemble those of E. Philadelphicum. The florets of the disk are bright yellow, and the ray-florets capillary, numerous, white, pale-blue, and sometimes pale-purple. The whole plant is of a dark or deep-green colour, in which circumstance it strikingly differs from the preceding species. It grows, as has been already mentioned, with its congener, just described; and in the neighbourhood of Philadelphia, it is nearly as abundant.

MEDICAL PROPERTIES OF ERIGERON PHILADELPHICUM AND ERIGERON HETEROPHYLLUM.

These two plants are introduced into this work, on account of their diuretic qualities. The E. Philadelphicum has been known for some years, as a diuretic; and it has been much used and com-

mended in gravelly and gouty affections.* I have been informed by Mr. Samuel Hazard, that his father, the late Ebenezer Hazard, of this city, was in the constant practice, for years before his death, of using the decoction of the plant, on the commencement of an attack of gout, and with much relief of its pains, as well as of some gravelly symptoms to which he was subject. It has been much praised for its remediate virtues in calculus ; and has been used in some few instances of dysury by Dr. Physick. He informed me that in a case of this kind, attended with great pain and irritability of the bladder, the patient found much relief by taking decoctions of the plant for a few weeks. Scabious has also been prescribed in cases of hydrothorax combined with gout ; in ascites, and in general dropsy ; and those who have given the medicine in these cases, report the most beneficial effects to have been produced. In a consultation letter from the late Dr. Wistar to Dr. Eberle, put into my hands by the latter gentleman, it appears that the doctor recommended the Scabious in the case of the late Judge Yates, of Lancaster, who was affected with gout and general dropsy, attended with distressing pain in the bowels, and so disordered a state of the stomach, that the squill could not be administered ; yet it was necessary to give some active diuretic. " I once attended a gentleman," says Dr. Wistar, " who suffered with gout and hydrothorax ; the squill produced great disturbance and pain of the stomach, and thus did

* Loureio says it is commended for its emenagogue virtues, by the people of Cochinchina, who call it *cay con hat.*

more harm than good. This gentleman was greatly relieved by the infusion of Scabious, which he took *very freely.*"* Dr. Eberle accordingly administered the decoction in this instance, and he informs me with great relief to the Judge. He was, from this circumstance, subsequently induced to prescribe it to a patient† affected with anasarca, who found the most essential relief from the medicine.

On learning from Dr. Physick that he procured the plant at the Friends' alms-house of this city, I found, by examining the herbs vended by the inhabitants of that place, under the name of Scabious, that they were the two species just described; and that they were sold indiscriminately for one article. At the same time I was informed that one (the E. heterophyllum) was commonly known, and brought to them by their herb-collectors, under the name of Sweet-Scabious. In consequénce of this information I made many trials of the last mentioned species, and found it possessed of active diuretic and sudorific virtues, like the E. Philadelphicum. I have every

* Dr. Wistar sent a box full of this Scabious to Dr. Eberle, for the use of the judge; and as Dr. Wistar had informed me that he procured the plant whenever he thought proper to prescribe it, at the Friends' alms-house, it is probable that the quantity sent to Lancaster was procured there. Consequently it was composed of two species, as may be seen in a subsequent part of the text.

† The late Paul Zantzinger, Esq. of Lancaster.

reason to believe, that both plants are deserving the attention of physicians, for the medicinal powers which have given them a place in this work; and there is great probability, from the similarity of the two plants, that the Erigeron heterophyllum has a just right to participation, in the reputation bestowed on the other species. They have certainly been confounded with each other by all but botanists; and used indiscriminately under one common name, and of course with the same object in view.

These plants should be gathered for medical use, while in flower, and carefully dried in wrapping paper. They should be used in decoction to the extent of a pint or two, in the course of twenty-four hours. Mr. Hazard's case, and the encouraging relief met with by Dr. Physick in the case above mentioned, as well as the one alluded to by Dr. Wistar, justify me in strenuously recommending the plants to the notice of physicians. My own experience with both species enables me to bear testimony to their diuretic virtues. If they be not among the most powerful medicines of this class, they have the estimable property of being innocent to the stomach. This organ will not reject the decoction of these herbs when it is so disordered and irritable as to render the squill, digitalis, &c. intolerable. I have used a strong decoction of the two plants, in a case of nephritis, at the Naval Hospital; and with great relief of the difficult and painful micturition so constantly attendant on this disease. My success, in the instance alluded

to, far exceeded my sanguine expectations, and emboldens me, with some degree of confidence, to recommend the Scabious in similar cases, for the relief of this distressing and troublesome symptom.

TABLE XX.

Fig. 1. Is a figure of the upper portion of Erigeron Philadelphicum, of the natural size, in flower. The blue variety is here represented, because of the greater facility of figuring blue than white flowers; at least of such a form as these. The white variety is more common.

2. The lower portion of the same, cut asunder at the asterisk.

TABLE XXI.

Fig. 1. Represents the upper portion of Erigeron heterophyllum, of the size of nature; the primary branch just past flowering, the secondary, or external branches, in full bloom. The ray-florets are rarely pure white, generally of the colour represented; and from this, gliding imperceptibly into purple.

2. The lower or radicle portion of the same, having had, between this and the upper part, twelve inches of the stem cut away.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Drawn from Nature by W. P. C. Barton

Turner Vallance, Kearny & 10th St

ASCLEPIAS TUBEROSA.

(Butterfly-weed.)

ASCLEPIAS TUBEROSA.

BUTTERFLY-WEED.

Pleurisy-root. Flux-root. Wind-root. White-root. In England, Tuberous-rooted Swallow-wort. Orange Apocynum.

Germ. Knollige Schwalbenwurz. (Willd.)

Asclepias tuberosa. L. Sp. Pl. 316. Hort. Cliff. 78. Roy. Lugdb. 411. Herm. Lugdb. 646. t. 647. Dill. Elth. 35. t. 30. f. 34. Houttuyn Lin. Pfl. Syst. 5. p. 791. Willd. Sp. Pl. tom. 1. part 2. p. 1273. Pursh. Fl. Am. Sep. vol. 1. p. 183. Walt. Fl. Car. Ait. Hort. Kew. ed 2d, vol. 2, p. 80. Mich. Fl. Boreali-Am. vol. 1. p. 117. Muhl. Cat. Pl. Am. p. 28. Big. Florula Bost. p. 63. Bart. Prod. Fl. Ph. p. 35. Thatcher's Disp. p. 154. Coxe's Disp. 3d. ed. p. 214. Chapman's Elem. Therap. &c. vol. 1. p. 346.

ASCLEPIAS.

Gen. Plant. 429.

Folliculi 2. *Sem.* papposa. *Cor.* rotata, plerumque reflexa. *Nectar.* 5. ovata, concava, corniculum exserentia. *Anther.* corneæ, longitudinaliter dehiscentes. Willd.

Nat. Syst. *Apocineæ.* Classis VIII. Ordo XIV.

Asclepias, T. L. * Apocinum, T. * Calix 5-fidus, parvus persistens. Corolla obtusè 5-partita, plana aut reflexa; squamæ 5-ejusdem laciniis alternæ, staminum tubo extùs insertæ, genitalibus appressæ.

in cucullum convolutæ, & è medio cucullo corniculum exserentes. Staminum filamenta coadunata in tubum crassum 5-gonum, germina arctè involvens, ex imâ corollâ enatum, suprà clausum stigmate truncato, & ipsi quasi continuum, in angulis 5-sculcatum, in faciebus 5-antheriferum ; antheræ subsessiles medio tubo extùs insertæ erectæ 2-loculares, polline vacuæ, apice membranaceæ, corollæ laciniis alternæ. Stylus 0 ; stigma peltatum 5-gonum, tubo supradicto impositum, ex foveolis 5-angularibus emittens corpuscula 5 ovata minima, antheris alterna, et ideò corollæ laciniis opposita, 2-valvia, valvis latere productis, infrà 2-cornia ; cornua hæc exilia propendentia basi subulata, medio geniculata, ultrà spatulata & granulata (ex concreto polline facta?) ; horum singulum in proximo vicinioris antheræ loculum immersum, undè 1 corpusculum antheris 2 commune & 1 anthera corpusculorum 2 particeps. Folliculi oblongi acuminati, sæpè ventricosi ; semina papposa. Juss. Gen. Pl. p. 147.

Nat. Ord. Linnæi. *Contortæ.*

Class *Pentandria.* Order *Digynia.* Lin. Syst.

Gen. Ch. *Cal.* perianth five-cleft, sharp, very small, permanent. *Cor.* Monopetalous, flat or reflex, five-parted ; divisions ovate-acuminate, slightly bending with the sun ; nectaries five, growing to the tube of the filaments, fleshy or cowled ; a sharp horn protruding from the bottom, bending inwards. *Stam.* filaments five, collected into a tube, swelling at the base ; anthers oblong, upright, two-celled, terminated by an inflex membrane lying on the stigma, having a reversed wing on each side ; the pollen is collected into ten corpuscules, inversely lanceolate, flat, hanging down into the cells of the anther by short threads, which are annexed by pairs to five cartilaginous twin tubercles, each placed on the tip of the wings of the anthers, adhering to the angles of the stigma, between the anthers. *Pist.* germs two, oblong, acuminate ; styles two, subulate ; stigma common to both, large, thick, five-cornered, covered at the top by the apexes of the anthers, umbilicate in the middle. *Per.* follicles two, large, oblong, acuminate, swelling, one-celled, one-valved. *Seeds,* numerous, imbricate, crowned with down ; receptacle membraneous, free.

Ess. Gen. Char. Contorted ; nectaries five, ovate, concave, putting forth a little horn.

Asclepias tuberosa, caule, erectiusculo summitate divaricato-ramoso, hirsutissimo, foliis sparsis oblongo-lanceolatis hirsutis, umbellis subcorymbosa-terminalibus. (Willd. and Pursh.)

β *decumbens.* A. caule decumbente, foliis sublinearibus hirsutissimis umbellis lateralibus. (Willd.)

SYNONYMA.

A. Caule erecto divaricato villosa, &c. Hort. Cliff.

Apocynum novæ Angliæ hirsutum, &c. Herm. Lugdb.

Pharm. *Asclepiadis tuberosæ* **Radix.**

Qual. Leniter adstringens.

Vis: Diaphoretica ʒi

Usus: Colica, pulv. radic. Hysteria. Hæmorrhagiae; decoct. aquos. Dysenteria, decoct. vinosum! Shœpf. Mat. Med.

DESCRIPTIO UBERIOR.

Planta pulchra. Radix perennis quasi tuberosa. Caules varii, plerumque erecti, pilosi, rubri, circitèr duobus pedibus alti. Folia numerosa, breviùs petiolata, alterna, semper pilosa, lanceolata-ovalia, lanceolata; in varietate β decumbente, lanceolata-linearia. Flores corymboso-terminales, numerosi, colore Aurantii nitentes. Siliquæ longæ, seminibus planiusculis refertæ. Semina dum maturescerint, cumque siliquæ dehiscere cæperint, pappo coronato, ventoque afflata, avolant. Habitat in arvis, floret Julio. Bart. Fl. Ph. MS.

The genus to which this superb plant belongs, takes its name from Æsculapius, the god of medicine. It contains an assemblage of some of the most beautiful productions of the vegetable king-

dom; and the A. tuberosa, is, perhaps, one of the most elegant plants of our country.

The root is large, and somewhat irregularly tuberous, sending up many erect, and sometimes decumbent hairy stems, branching at the top. The stems are round, very hairy, and of a reddish colour. The leaves are scattered, and supported on petioles little more than the eighth of an inch in length; varying in being lanceolate-oval, long-oval, lanceolate, and in the variety β *decumbens*, linear-lanceolate, and repand on the margin. They are of a deep rich green above, much paler underneath, and very hairy. The umbels are terminal and somewhat in the form of a corymb; in the variety β they are lateral. The bracteal involucre is composed of numerous narrow-linear, nearly subulate membranaceous leaves, of a salmon colour. The flowers are situated in terminal corymbose umbels, and are of a brilliant reddish-orange colour. The fruit is a long narrow roundish pod, pointed at each end: and the seeds, like the rest of the genus, are furnished with a long silky appendage. The plant continues for a long time in bloom, at which time its rich green leaves contrasted with its gorgeous inflorescence, render it an universal favourite. Its geographical distribution is extensive, being found from the northern states to the southern boundary of the Union; but it is most abundant in the Carolinas and Georgia. In the neighbourhood of Philadelphia it is somewhat rare; but is more frequent in Jersey. It is generally found in

fields, sometimes in meadows; and flowers in the months of June and July. The root alone is used for medical purposes.

MEDICAL PROPERTIES.

So many estimable qualities are usually attributed to this very favourite plant and popular medicine, that it is not easy to assign it a proper place in the Materia Medica If the butterfly-weed is deserving of half its reputation, it is richly entitled to a distinguished rank in this work; and so numerous and respectable are the authorities in support of its celebrity, that it is with considerable diffidence I venture to lessen, in the least degree, its elevated character as a medicine, by the intimation of any doubts of its just claim to its present undisputed reputation. My own experience with it is confined to a few trials in cases in which it is reputed to be peculiarly beneficial; and these have resulted in an opinion, that there is some foundation for the encomiastic accounts of this medicine. It may be safely, nay confidently recommended to physicians, as a mild cathartic, particularly suitable to the complaints of children, as it leaves the bowels in a tranquil condition; and as a certain diaphoretic, attended with no inconsider-

able expectorant effect. But a regard for truth obliges me to state that the virtues of this plant are, as far as my experience extends, considerably exaggerated, there being ascribed to it a multitude of powerful, extraordinary, and almost inestimable properties, to which its virtual character affords no substantial claim. It must be remembered, however, that these remarks are not intended to stigmatise the Pleurisy-root as worthless, for I deem it a valuable article; my only object is to endeavour to present to the public its prominent virtues, divested of what, in my own opinion, is an aggregation of imputed but unreal qualities. A gentleman of Virginia who, judged by his own writing, is evidently not a regular physician, first brought this plant into very general notice, as a cure for the pleurisy. He has been quoted by the late Professor Barton, and subsequently by the compilers of the American dispensatories; and thus have his exaggerated accounts been extensively diffused throughout our country, without any other good effect, perhaps, than that of bringing a plant into general notice, which really possesses medicinal virtues, though not of the nature and number specified in those accounts. To the gentleman alluded to, however, is not to be imputed the discovery of the remediate effects of pleurisy-root. Dr. Shœpf mentions the plant, and specifies the property for which it seems to me most probable, it will become useful: its effect in inducing diaphoresis. He says it is a diaphoretic in the dose of one drachm; that it is slightly astringent; that the powdered root is useful in cholic; an aqueous decoction, in hysteria and menorrhagia; and a vinous decoction in

dysentery. This account by Dr. Shœpf, of the "Asclepias tuberosa," as he calls it, inadvertently escaped the attention of the late Professor Barton, else he would, it is presumable, have quoted this author, when speaking of the plant in question. Under the names "Butterfly-root, Pleurisy-root," Shœpf also speaks of the use of some plant, in pleurisy and febrile diseases; and then tells us, on the authority of the late Rev. Dr. Muhlenberg, that the name of Pleurisy-root was applied to the Asclepias tuberosa, and that a decoction of it was esteemed a certain remedy for pleurisy.* The late Profesor Barton informs us† that the root of this plant "is said to possess a remarkable power of affecting the skin, inducing general and plentiful perspiration, without greatly increasing the heat of the body"—that "it is much employed by practitioners of medicine in some parts of the United States, particularly I believe, in Virginia, as a remedy in certain forms of fever, in pleurisy, and other affections. The root is used both in powder and in decoction. Sometimes it is used in combination with antimonials." He further says

* *Butterfly-root; Pleurisy-root.* Hoc nomine in Terra Mariana Radix quædam insignitur, alba, crassitie digiti auricularis, cujus virtutes incolæ in Pleuritide, aliisque morbis febrilibus, magni faciunt. Plantam non vidi; nomen vero, illam ad Diadelphiam pertinere, suadet. — Sapor est mucilagineo-dulcescens, amaricans.

In Pennsylvania nomine *Pleurisy-root.* Radix Asclepiadis tuberosæ venit, cujus particula, dimidium pollicem magnitudine aequans, decocta pro remedio certissimo adversus Pleuritidem habetur, ut nuper e literis Ven. *Muhlenbergii* didici.

Mat. Med. p. 160.

† Collections.

that the decoction "often induces perspiration when other medicines have failed to produce this effect," and on the authority of a correspondent*, that in the low states of typhus fever, it induced perspiration when other sudorifics failed. In a letter which I have received from a physician in Wrightstown,† it appears, that the Asclepias tuberosa is in frequent use by the regular practitioners, as a gentle cathartic in difficult dentition, and as a diaphoretic. To produce the latter effect the writer of the letter gives the following as a proper recipe:

Rad. asclep. ʒii
Lac recens ℥xviii }

boiled down to ℥xii. One ounce of the decoction to be given twice or thrice in twenty-four hours, which excites a copious perspiration, and proves at the same time gently cathartic.

It may be said with truth, that the Asclepias tuberosa is a certain, and of course an useful diaphoretic; whether it acts in this way, as it is said to do, without increasing the force of the circulation or augmenting the heat of the body, I am not prepared by any extensive use of the plant, to aver; at the same time it must be confessed, that in the few instances in which my employment of this medicine has presented to me a view of its effects, the plant has

* Dr. Charles Everett, of Milton.

† Stephen Burson, M. D.

supported its reputed character in this respect. And the multitude, respectability, and strength of evidences in favour of this very desirable quality, leave no room to suppose that the plant has received, so far, any undue encomiums. Its expectorant effect in pneumonia and catarrha, is substantiated by a multiplicity of corroborative facts, the relation of which is derived from physicians of undoubted respectability. The late Professor Barton esteemed the Asclepias tuberosa, as one of the most important of our indigenous medicines: and he says the powdered root is escarotic. When taken internally, the dose is from 20 to 30 grains of the powder. This article may be concluded with the following quotation from Thatcher's Dispensatory. The extensive experience of the gentleman there alluded to, with the plant under consideration, is entitled to great attention:

"The powdered root frequently acts as a mild purgative, but it is particularly valuable for its virtues as an expectorant, diaphoretic, and febrifuge, and in this respect its efficacy is amply confirmed by the testimony of Dr. Benjamin Parker, of Bradford, Massachusetts, from his own observation during an extensive practice for many years in Virginia. From the successful employment of the Pleurisy-root for twenty-five years, this respectable physician has imbibed such confidence, that he extols it as possessing the peculiar, and almost specific quality of acting on the organs of respiration, powerfully promoting suppressed expectoration, and thereby

relieving the breathing of pleuritic patients in the most advanced stage of the disease; and in pneumonic fevers, recent colds, catarrhs and diseases of the breast in general, this remedy has in his hands proved equally efficacious. He directs it to be given in the form of strong infusion, a tea-cup full every two or three hours. By many families in the country this root has long been esteemed as a domestic medicine, resorted to for the relief of pains of the stomach from flatulence and indigestion; hence the vulgar name of *Wind-root*, by which it is known in some parts of the country, and from its colour it is by some called White-root. It is said that by a perseverance for several weeks in the use of about one drachm of the powdered root every day, the lost tone of the stomach and digestive powers has been restored."

TABLE XXII.

Fig. 1. A branch of Asclepias tuberosa, of the natural size.

2. A flower.

3. The Nectary.

4. The calix and germ.

Drawn from Nature by W. P. C. Barton

Tanner Vallance, Emmy & Co. Sc.

CONVOLVULUS PANDURATUS.

(Fiddle-leaved Bind-weed.)

CONVOLVULUS PANDURATUS.

FIDDLE-LEAVED BIND-WEED.

Wild-Rhubarb. Mechamech of the Indians. Mecoacanna. Wild Potatoe. Hog Potatoe—In Virginia Wild Potatoe vine; (*the root*, Kussauder, or Kassader, in the state of Delaware.) Virginian Bind-weed, in England.

Germ. Geigenblättrige Winde. (Willd.)

Convolvulus panduratus. L. Sp. Pl. 219. Gron. Virg. ed. n. 28. Shoepf. Mat. Med. Am. p. 21. Barton's Collections, part. 1. p. 30, 56. part 2. p. 49. Dill. Elth. 101. t 85. f. 99. Houttuyn Lin. Pfl. Syst. 5. p. 523. Pursh. Fl. Am. Sep. vol. 1. p. 144. Mich. Fl. Boreali-Am. vol. 1, p. 138. Pers. Syn. Pl. vol. 1. p. 178. Bart. Prod. Fl. Ph. p. 29. Coxe, Am. Disp. ed. 3. p. 284. Ait. Hort. Kew. ed. 2. vol. 1. p. 327.

CONVOLVULUS.

Gen. Plant. 287.

Caps. 2-3-locularis. *Cor.* Campanulata, 5-plicata.

Stigm. 2 filiformia. *Cal.* nudus aut bibracteatus.

Nat. Syst. Juss. *Convolvuli.* Classis VIII. Ordo IX.

Convolvulus, T. L. * Liseron. Calix 5-partitus. Corolla campanulata aut rariùs infundibuliformis, limbo 5-plicato sæpiùs integro angulato, angulis acutis aut dentatis. Stamina inæqualia, filamentis approximates. Germen glandulæ hypogynæ semi-immersum; stylus 1; stigma 2-fidum. Capsula sæpè 3-locularis, rarò 2-4-locularis, loculis 1-2-spermis, quibusdam interdùm abortivis. Herbæ lactescentes, plurimæ volubiles; pedunculi axillares aut terminales, 1-flori 2-bracteati, aut multiflori. Species paucissimæ fructiculosæ. Juss. Gen. Plant. p. 134.

Nat. Ord. *Vent. Convolvulaceæ.*

Nat. Ord. Lin. *Campanaceæ.*

Classis *Pentandria.* Ordo *Monogynia.*

Gen. Ch. *Cal.* perianth five-cleft. *Cor.* monopetalous, bell-shaped or funnel-shaped, plaited; border generally spreading, more or less five-lobed. *Stam.* filaments five, awl-shaped, shorter than the corolla, approximating at the base. *Pist.* germ superior, roundish; stile filiform; stigma simple or bifid. *Peric.* capsule surrounded by the calix, roundish; one, two, three, or four-celled; one, two, three, four, or many-valved. *Seeds* one or two in each cell.

Ess. Ch. Five-cleft. Corolla bell or funnel-shaped. Stigmas one or two. Pericarp a capsule, or dry berry. Seeds one or two in each cell.

Obs. Authors often call the calix five-leaved, when it is very deeply five-cleft. Ency.

Convolvulus panduratus, volubilis, pubescens; foliis lato-cordatis integris lobatisve panduriformibus, pedunculis longis, floribus fasciculatis, calicibus glabris muticis, corollis subulato-campanulatis.

SYNONYMA.

Convolvulus megalorhizus. Dill. Elth.

C. foliis cordatis integris panduriformibus, calicibus lævibus. Sp. Pl. 219.

C. foliis inferioribus cordatis, superioribus trilobis, calicibus pedunculis petiolisque glabris, caule rubescente. Gron. Virg. 141.

Pharm. Convolvuli pandurati, *Radix.*

DESCRIPTIO UBERIOR.

Radix perennis, elongata, cylindrica. Caulis herbaceus volubilis, pubescens, teres. Folia longè petiolata, lato-cordata seu lobata, lobis rotundatis obsoletioribus, integra acuminata. Pedunculi folio longiores, teretes. Flores fasiculati. Corolla magna campanulata, alba, fundo rubro-purpurascente. Bractæ vix ullæ, sed sæpe squamæ 2 obsoletè. Stamina longitudine tubi, alba. Pistillum album, vix longitudine staminum; stigma capitatum, album. Habitat in arenosis arvis, florens Junio et Julio. Bart. Fl. Ph. MS.

The genus Convolvulus, (so called *a convolvendo*, because many of the species are twining) contains a vast number of species, of which about sixteen are natives of this country. The one under present notice, derives its specific appellation from the shape of its leaves, which are frequently panduriform, or fiddle-shaped.

The root is perennial, very large, cylindrical, and full of longitudinal fissures. It is generally about the thickness represented in the plate, and about two or three feet long, branched at the bottom; of a yellow-ochre colour. I have seen specimens, however, of greater dimensions. The stem is twining, often procumbent on the earth, and not unfrequently climbing round fence-posts. It is round, of a greenish-purple colour. The leaves are broad, heart-shaped, entire, lobed, panduriform, somewhat acuminate, (deep green above and lighter underneath) situated on long petioles. Flowers

in fascicles; calix smooth, awnless, corolla subulate-campanulate, white, with the tube purplish-red at the base, both externally and within. The peduncles and petioles have a common origin, and are arranged in pairs. The flower-buds are of a purplish-red hue at first, and when further advanced, are straw-colour. The plant flowers from June to August. It will be found every where in sandy fields, and by fences, from Canada to Florida.

MEDICAL PROPERTIES.

The root of this plant, in larger doses than jalap, is mildly cathartic. Its operation is somewhat like that of rhubarb. But it has not obtained a place in the American dispensatories, for its cathartic property; and, it must be confessed, it is doubtful whether it possesses this virtue to any such extent, or in any such peculiar manner, as to entitle it to particular notice on this account. It is for its reputed power as an antilithic, that I have introduced it here. The plant has certainly acquired no inconsiderable repute, as a remedy for calculous affections. A decoction is said to have been used with great success, by a physician of New Jersey,* who

* Dr. Harris—see Barton's Collections.

was enabled, by its use, to pass calculous granulæ with facility. It appears also, that in Virginia, and some other parts of the United States, the root of this plant, taken either in powder or decoction, has been recommended in cases of gravel.* Perhaps it is diuretic. Hitherto it has received but little attention among regular practitioners of medicine. It has, however, been employed among empirics, but for what purpose it is not easy to learn. I have seen it collected for their use, but, as may be supposed, any enquiries as to the object for which it was procured, resulted in no certain information. The constant habit of secrecy observed by these impostors, screens from the view of the profession, occasionally, active and useful articles. Of the medical virtues of the plant in question, I know nothing from experience, having never used it in any form.

Shoepf informs us that it grows plentifully round Bethlehem, (Penn.) where its root is collected and sold for Mechoacanna, and that it has the same virtues and appearance as that article.†

* Barton's Collections.

† Mat. Med. Am. p. 21.

TABLE XXIII.

A representation of a portion of Convolvulus, with a portion of the root, of its common size. The whole of the root is buried under the ground.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Drawn from Nature by W. P. C. Barton.

Turner, Villanue, Kearny & Co. sc.

SABBATIA ANGULARIS.

(Centaury.)

SABBATIA ANGULARIS.

CENTAURY.

American Centaury. Centory. Centry. Angular-stalked Sabbatia.

Germ. Eckige Chironie. (Willd.)

SABBATIA angularis, Adanson, Parad. Lond. t. 32. L. Sp. Pl. 272. Houttuyn Pfl. Syst. 5 p. 701. Willd. Sp. Pl. tom. 1. p. 1067. Shoepf, Mat. Med. Am. p. 27. Pursh, Fl. Am. Sep. vol. 1. p. 137. Barton's Collections, part 2. p. 15. Mich. Fl. Boreali-Am. vol. 1. p. 146. Pers. Syn. Pl. vol. 1. p. 282. Thatch. Disp. ed. 2d. p. 180. Coxe Disp. ed. 3d. p. 259. Bart. Prod. Fl. Ph. p. 32. Muhl. Cat. Pl. Am. Sep. 23.

SABBATIA.

Adanson. Parad. Lond. t. 32.

Caps. 1-locularis. *Cor.* tubo urceolato, limbo 5-12-partito. *Stigm.* 2-partitum; laciniis spiralibus. *Anth.* demum revoluta.

Nat. Syst. Juss. *Gentianæ.* Classis VIII. Ordo XIII.

Nat. Ord. Lin. *Rosaceæ.*

Classis *Pentandria*, Ordo *Monogynia.* Lin. Syst.

Gen. Ch. *Cal.* Perianth one leafed, five-cleft, erect, permanent; segments oblong, acute. *Cor.* monopetalous, salver-shaped, or almost wheel-shaped, regular; tube scarcely longer than the calix; border five-cleft, spreading; segments egg-shaped, open. *Stam.* Filaments five, short, attached

to the tip of the tube: anthers oblong, erect, converging, spirally twisted after shedding the pollen. *Pist.* Germ superior, egg-shaped; style filiform, a little longer than the stamens, declining; stigma capitate, ascending. *Peric.* Capsule or berry egg-shaped, two-celled. Lin. Smith (one-celled; Lam. Gært.) valves inflexed. Smith. *Seeds* numerous, small, attached to the sides of the receptacle.

Ess. Ch. Corolla salver-shaped. Stamens inserted into the tube; anthers finally becoming spiral. Style declining. Pericarp superior, two-celled; valves inflexed. Smith.

Obs. In some of the species the anthers have not been observed to become spiral.

SABBATIA angularis, erecta; foliis ovatis amplexicaulibus, pedunculis elongato-corymbosis, calice corollæ semibreviores, laciniis lanceolatis, caule marginato-quadrangulo. Pursh. Fl. Am.

SYNONYMA.

CHIRONIA herbacea, caule acutangulo, foliis ovatis amplexicaulibus. Sp. Pl.

CHIRONIA angularis. Willd. Sp. Pl. Mich. Muh. &c.

Pharm. Sabbatiæ angularis *herba.*

Qual. Aromatica, amara.

Usus. Infusum in febribus.

DESCRIPTIO UBERIOR.

Facies Chironiæ Centaurii. Caulis pedalis, tetragonus: alis membranaceis. Folia ovata (acuta) opposita, sessilia et semi-amplexicaulia. Flores congesti, ut in Hyperico; antheræ spirales; stylus bifidus. Willd. Sp. Pl.

THE subject of this article is a very elegant plant. It is universally known by the different names enumerated above, through-

out the United States, and it is no less valued for its medicinal virtues than admired for its beauty.

The root is annual; it consists of a few thick yellowish-white fibres, and sends up a single stem (rarely two) simple below, but very much and regularly branched above. The stem is herbaceous, from one foot to eighteen inches high, smooth, four-sided, with membranous wings at the angles. The branches are axillary, and of a similar structure. The leaves are opposite, ovate, acute, closely sessile, or nearly amplexicaule, three nerved. They vary, however, in being longer and narrower. The flowers are very numerous, growing at the extremities of the branches, in numbers from two to five; are of a beautiful rose-red colour above, much paler and nearly white in the centre underneath, which gives to the buds a white appearance. In the centre of the corolla there is a defined, pentangular star, of a rich yellow colour, bordered with green. The petals are obovate, and vary in being narrower, sometimes nearly lanceolate-obtuse. The calix consists of five narrow acute, or almost subulate segments, little more than half the length of the corolla. The anthers are spiral, of a rich yellow colour. The plant is in full flower in July.

Sabbatia angularis is a common plant, being extensively distributed throughout the Union. It is most frequently found in low

meadow grounds, but not uncommonly on hills, and in neglected fields. It grows abundantly in the swampy grounds near Woodbury, New Jersey, and on the high banks of the Schuylkill, and hilly fields, on the Woodlands, near this city. In the months of August and September, it is brought in vast quantities to our market, by the Jersey people, and those who come from the neighbourhood of West-Chester (twenty miles from Philadelphia). Near the latter place I have been informed by the market people, it grows in great profusion; and indeed this is evident from the quantities they bring of it for sale. Though the centaury is so much esteemed, and so universally purchased, it is vended in large bunches at six cents each, owing to the abundance.

MEDICAL PROPERTIES.

Centaury, like nearly all of the very natural family of Gentianæ, to which the genus belongs, is an intense bitter, every part of the plant equally partaking of this quality.

It is justly held in estimation as a valuable tonic bitter; and for this property it has received a place in this work. It seems to differ from the Chironia centaurium, or Lesser-Centaury of Europe, in the circumstance of the flowers, as well as the other parts of the plant, being intensely bitter. In every other respect it is very similar, and equally deserving of extensive use. It has been very generally administered in febrile diseases throughout the United States, by regular practitioners; it is also much used in domestic practice, as a prophylactic against autumnal fevers. The late Dr. Barton says it "was much employed in the year 1793, in certain stages of yellow fever;" and the doctor was of opinion that it was often used with much benefit.*

On the whole, Centaury may be confidently recommended, for its pure bitter, tonic and stomachic virtues. It ought to have a place in all the apothecaries' shops of our country. It readily yields its active virtues to aqueous and spiritous menstrua. But the infusion, taken cold, is the most common method of using the medicine. It may also be given in powder, but not, I think, so advantageously. Perhaps an extract would be an useful preparation; in some diseases this mode of using the plant might have a just preference to the infusion. I have often prescribed the infusion and spiritous tincture, and have taken both myself. From

* Collections for a Materia Medica of the United States.

experience, therefore, I can state, that the plant affords a grateful and efficacious tonic bitter, quite equal to the European plant, and much more readily procured. Indeed it is doubtful whether the Lesser-Centaury can be procured any where in our shops, in sufficient abundance to be extensively used; whereas the plant under notice is within the reach of every one.

TABLE XXIV.

Fig. 1. Represents the upper portion of Sabbatia angularis, of the size of nature.

2. Front view of a separated flower.

3. The calix and pistil.

4. Back view of a separated flower, shewing the calix and under side of the corolla.

5. A stamen.

6. The pistil.

The flowers are not unfrequently of the size of the smallest ones represented in this drawing; but in specimens taken from favourable situations they are as large as figured.

APPENDIX.

CHEMICAL ANALYSIS OF EUPHORBIA IPECACUANHA.*

Four drachms of powdered Euphorbia were digested in four ounces of Alcohol, specific gravity 827, for the space of ninety-six hours, half of which time it was exposed to a heat between ninety and a hundred degrees of Farenheit's thermometer. At the expiration of this time, the alcohol had acquired a pale lemon colour, which disappeared on the addition of a few drops of nitric acid, without producing any other phenomenon than the evolution of a peculiar etherial odour. On the addition of water, slight floculi appeared, so minute as to elude chemical examination; they were

* This analysis was made by Mr. Cullen, chemist, of this city; a gentleman every way qualified for such investigations. It is extracted from the Thesis of Mr. Royal, a graduate in our University.

redissolved on the addition of alcohol. To another portion of this alcoholic solution, tincture of galls was added, with no other effect than changing its colour to a dark brown. A separate portion was tested by a solution of gelatine, which produced no change whatever in its sensible or chemical properties. The non-existence of cinchonin or tannin, being thus ascertained, the remaining tincture was submitted to distillation in an alembic, placed in a water-bath, saturated with muriate of soda. On the application of heat there ascended a small quantity of pure alcohol. On an elevation of temperature, there came over a dark brown fluid, bearing a striking analogy in smell and colour, to highly rectified oil of amber; the residuum, when hot, was of the consistence of tar; but on cooling, assumed a concrete form, extremely brittle, and when broken, of a glassy fracture, not unlike kino.

A small quantity of this extract was subjected to distillation, and afforded carburetted hydrogen and carbonic acid. On another portion of the extract, distilled water was boiled until it formed a brown turbid mixture, which deposited, on cooling, small shining molecules, that resisted the successive action of highly concentrated ether and alcohol; but were converted into oxalic acid on the affusion of nitric acid.

There resides, therefore, in the Euphorbia Ipecacuanha, a colouring principle, soluble in alcohol, and insoluble in water;

forming with nitric acid oxalic acid, and a peculiar odorant principle. That it contains resin, may be concluded from water precipitating the alcoholic solution, and alcohol redissolving the precipitate; and, from the quantity of carburetted hydrogen it evolves when heated, that its emetic matter differs from that found in the Callicocca Ipecacuanha, by the French chemists (Messrs. Pelletier and Magendie), may be inferred by its not forming a precipitate with the gallic acid, which the other does abundantly, nor is its emetic principle as soluble in acetic acid, as that of the Callicocca ipecacuanha.

To ascertain further its constituent principles, the following experiments were instituted: Four ounces of Euphorbia, finely powdered, were infused in six ounces of distilled vinegar, specific gravity 1300.5, water taken at 1000; in 72 hours the vinegar had acquired an increase of fifteen grains in specific gravity, and a light straw colour, which remained permanent notwithstanding nitric acid had been poured on it. To be certain that no mistake had been committed in weighing the vinegar, the residuum, insoluble in acetous acid, was carefully dried; when its loss was found to be in exact ratio to the increased specific gravity of the solution.

All the experiments performed on the alcoholic solution were repeated, and attended with similar results, except that a quantity of mucilage was precipitated by the super acetate of lead.

In another experiment six drachms of Euphorbia coarsely powdered were infused in eight ounces of distilled water for the space of two days, and afterwards boiled for four hours ; the decoction was mucilaginous, and of a light brown colour, possessing an odour resembling oat-meal. It afforded similar products with the preceding ; and was not precipitated or altered in appearance by a solution of tartar emetic, nitrate of potash, or a watry solution of opium.

Iodine produced a copious blue precipitate ; thereby indicating the presence of starch, which precipitate was collected on the filter, in the form of Ioduret of starch.

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END OF VOL. I.

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IN consequence of a hasty reading of some of the proof sheets of Numbers 1 and 2, and a neglect to see revises till correct, a number of the errors of the first proof have been left standing, which were not detected until more than half the impression was worked off. Most of them, however, have been noticed on the covers of the numbers, and the Subscribers are requested to correct them before the covers are thrown away, in binding the volume.

In No. 3, page 185, line 4, from the top, for *perfoliatum*, read *perforatum*.